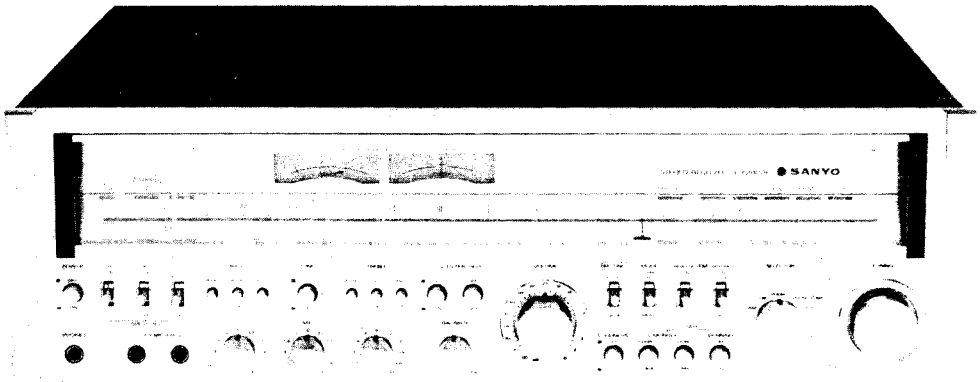
SERVICE MANUAL

STEREO RECEIVER

SANYO

JCX2900KR

(SCAN)



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WM-3339

SPECIFICATIONS

Power Amplifier Section

Continuous power	150 watts x 2 (at 4 ohms), 140 watts x 2 (at 8 ohms) (1% Distortion)
Total harmonic distortion	0.008% (1kHz, 120W output, 8 ohms)
Input sensitivity/Impedance	1V/50k ohms
Damping factor	60 (at 8 ohms)

Pre-Amplifier Section

Input sensitivity and impedance	
PHONO 1	2.5mV/50k ohms
PHONO 2	2.5mV/50k ohms
MIC	6.5mV/50k ohms
AUX	150mV/50k ohms
TAPE PLAY 1	150mV/50k ohms
TAPE PLAY 2	150mV/50k ohms
TAPE PLAY 2 (DIN)	150mV/50k ohms
Phono overload level	
PHONO 1	300mV
PHONO 2	300mV
Output level	
TAPE REC 1	150mV
TAPE REC 2	150mV
TAPE REC 2 (DIN)	30mV/80k ohms
PRE OUT	1V/2.2k ohms

Frequency response	
PHONO 1 (RIAA 20Hz – 20kHz)	±0.2dB
PHONO 2 (RIAA 20Hz – 20kHz)	±0.2dB
AUX (20Hz – 20kHz)	±1dB
Tone control response	
BASS at 100Hz (T.O.) 400Hz	±10dB
TREBLE at 10kHz (T.O.) 2.5kHz	±10dB
MID at 1kHz	±5dB
Low filter response	30Hz (–12dB/oct.)
High filter response	8kHz (–6dB/oct.)
Loudness control response	
Volume set –30dB position at 100Hz	+10dB
Volume set –30dB position at 10kHz	+4dB
Hum and noise ratio	
PHONO 1	70dB
PHONO 2	70dB
AUX	90dB

FM Tuner Section

Frequency range	87.5 – 108MHz
Usable sensitivity (at Mono)	1.5μV
Signal-to-noise ratio	
at Mono	73dB
at Stereo	66dB
Harmonic distortion	
at Mono	0.1%
at Stereo	0.15%

AM suppression (30% 400Hz AM)	60dB
Frequency response	30Hz – 15kHz (±3dB)
Alternate channel selectivity	55dB (DIN)
Capture ratio	1.0dB
Stereo separation at 1kHz	46dB
Aerial input	300 ohms balanced 75 ohms unbalanced

MW Tuner Section

Frequency range	510 – 1605kHz
Sensitivity	280μV/m
Signal-to-noise ratio	46dB

Image rejection	55dB
IF rejection	64dB
Aerial	External ferrite bar aerial

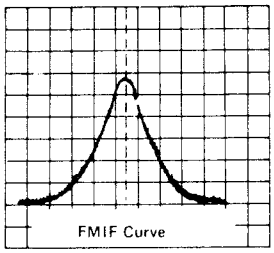
General

Power requirements	AC: 115/220V, 50Hz
Power consumption	700W
Dimensions	21-11/32" W x 7-3/8" H x 18-9/16" D (540 x 186 x 470 mm)
Weight	Approx. 51 lbs. 14 ozs. (23.5kg)

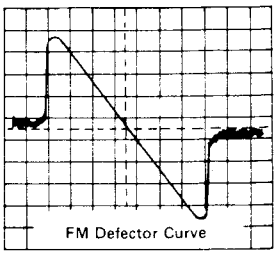
* Specifications are subject to change without notice.

FM IF ADJUSTMENT

1. V curve adjustment
   1) Connect TP-3 (HOT) and TP-4 (Earth) to the output terminal of the sweep generator, and TP-5 (H) and TP-17 (E) to the input terminal.
   2) Connect a resistance load of about 10 to 50 K-ohms to the input of the sweep generator and disconnect the tuning meter leadwires from the circuit board.
   3) Cut off ceramic capacitor C261 (0.022μF) at one end.
   4) Make adjustment while keeping the output from the sweep generator at the low level (where noise appears on the waveform).
   5) While watching the sweep waveform, adjust the T201 until the sweep waveform presents the pattern as in Fig. 1.



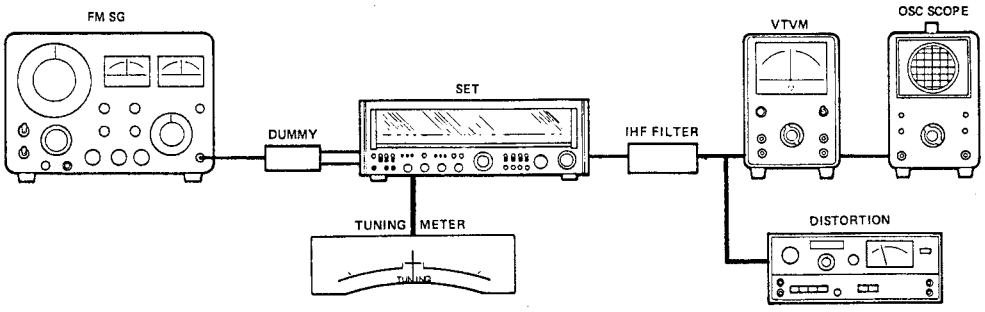
2. S curve adjustment
   1) Connect TP-3 (H) and TP-6 (E) to the output the sweep generator. Connect TP201 (H) and TP104 (E) to its input.
      NOTE: It is necessary to connect a capacitor (1μF/16V) to the input of the sweep generator (H) for cutting DC current.
   2) Adjust the T202 until the S curve presents the pattern as in Fig. 2. Avoid turning the T203 unless absolutely necessary.
      *TP-4 is a shield plate, TP-5 is a R215 (15 K-ohm) and TP-17 is a shield case of T203.



CENTER ADJUSTMENT OF TUNING METER

Set FM SG as follows: modulation frequency 1 KHz, frequency deviation 75 KHz DIV. (100% modulation).
Connect a 300 ohm balanced dummy to the 300 ohm terminal of the external antenna and a filter to TP-9 or TP-10 (H) and TP-11 (E).

1) Set the tuning dial of the unit to 98 MHz (where no Broadcasting signal is coming in).
2) While keeping the FM SG output level to less than −20 dB , adjust the T202 until the tuning meter needle stands at the center point.
3) Apply 60 dB (1 mV) to the 300 ohm terminal of the external antenna and adjust the tuning dial so that the tuning meter needle stands at the center point.
4) Reduce the distortion factor to a minimum by turnin the T203.
5) Repeat steps 2), 3) and 4).
6) Turn the core of T201 only slightly until the distortio factor becomes minimal.
7) Set the FM SG output level to 0. Confirm tuning mete needle stands at the center point. If needle is not a center point, repeat from step 2).
8) Set the FM SG output level to the same level as item 3) Conform the distortion factor is minimum when th tuning meter needle is at center point.
   NOTE: Use Hum and Sub-carrier Filter to obtai accurate distortion factor.



FM TRACKING ADJUSTMENT

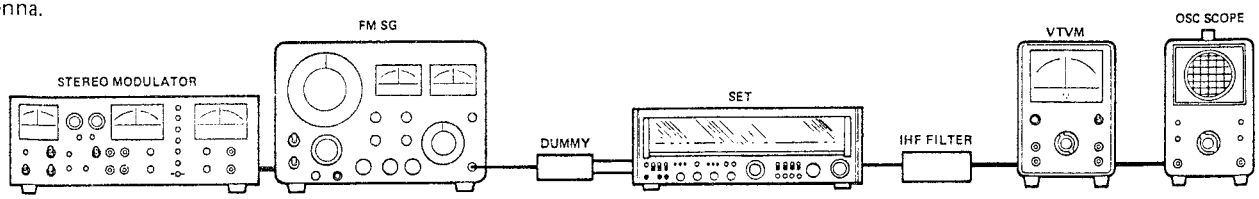
Set FM SG as follows: modulation frequency 1 KHz, frequency deviation 75 KHz DIV. (100% modulation). Connect VTVM to TP-9 or TP-10 (H) and TP-11 (E).
Flip the MODE switch of the unit to "MONO".

1) Make LOW TRACKING adjustment by means of L101, L102 and L103. Use 90 MHz FM signal for this purpose.
2) Make HIGH TRACKING adjustment by means of CT-1, CT-2 and CT-3. Use 106 MHz FM signal for this purpose.
3) Make complete TRACKING adjustment by repeatin steps (1) and (2).
   *When properly adjusted, the distortion factor of th output from the unit is reduced to a minimum provided that the distortion factor of the SG output i about 3%.

19 KHz PILOT CANCELER ADJUSTMENT

Set the frequency of FM SG to 98 MHz and the pilot signal of the stereo modulator to a modulation degree of 9%. Connect a filter to TP-6 or TP-7 (H) and TP-18 (E).

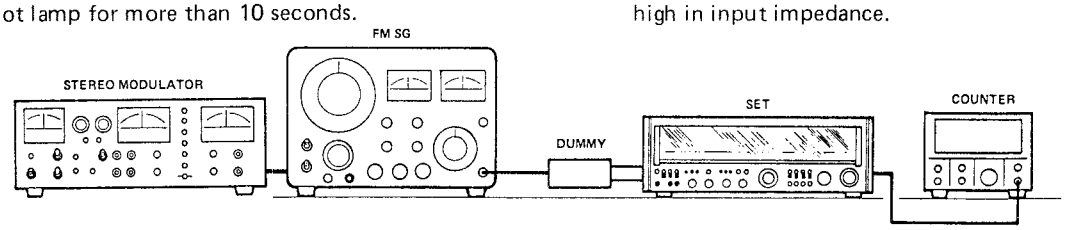
1) Set the tuning dial of the unit to 98 MHz.
2) Apply 60 dB (1 mV) to 300 ohm terminal of external antenna.
3) Turn R305 (SVR) until the leakage of 19 KHz becomes minimum.
   NOTE: Use 19 KHz band-pass filter.



FM VCO ADJUSTMENT

Set the frequency of FM SG to 98 MHz (where no broadcasting signal is coming in), the muting switch of the unit to ON, the pilot signal of the stereo modulation to a modulation degree of 9% and mode switch to MONO. Connect a frequency counter to TP-8 (H) and TP-11 (E).

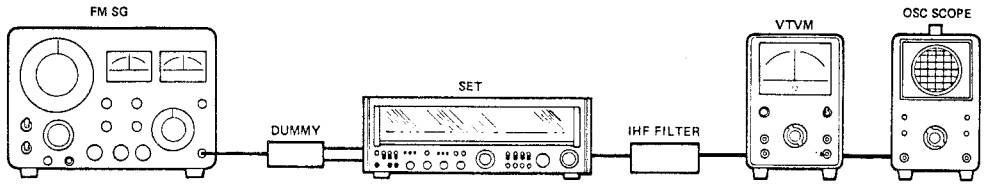
1) Increase the output level of FM SG until the stereo pilot lamp of the unit glows. Then, keep the glowing of the stereo pilot lamp for more than 10 seconds.
2) Adjust R309 (SVR) until the frequency counter reading becomes 76 KHz ±76 Hz immediately after cutting off the SG output (viz. after the stereo pilot lamp has gone out).
   * Do not make this adjustment immediately after setting to ON the power switch of the unit.
   * For this adjustment, use a frequency counter relatively high in input impedance.



FM MUTING LEVEL ADJUSTMENT

Set FM SG as follows: modulation frequency 1 KHz. frequency deviation 75 KHz DIV. (100% modulation). Then, set the muting switch of the unit to ON. Connect a filter to TP-9 or TP-10 (H) and TP-11 (E).

1) Set FM SG to 98 MHz and tune the unit to that frequency.
2) Apply 16 dB to the 300 ohm terminal of external antenna.
3) Turn R217 (SVR) and set it at the position where the VTVM needle stops swinging or the waveform on the oscilloscope becomes very small.
   * When the muting function is ON, the waveform decreases in size, and weak signals and noise are cut off.

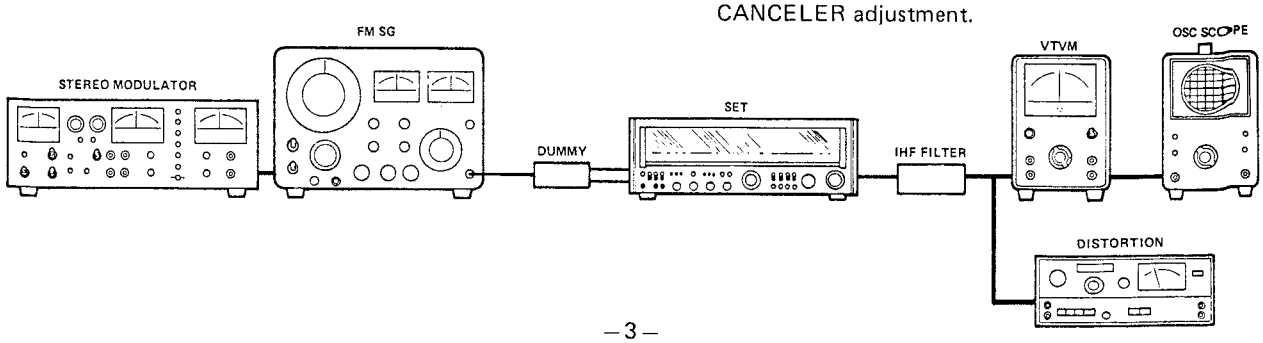


SEPARATION ADJUSTMENT

Set FM SG as follows: modulation frequency 1 KHz, frequency 98 MHz. Set the pilot signal of the stereo modulator to a modulation degree of 9%. PL + L + R = 75 KHz DIV. (9% + 91%)

Select the "STEREO" mode by the mode switch of the unit. Connect a filter to TP-9 or TP-10 (H) and TP-11 (E).

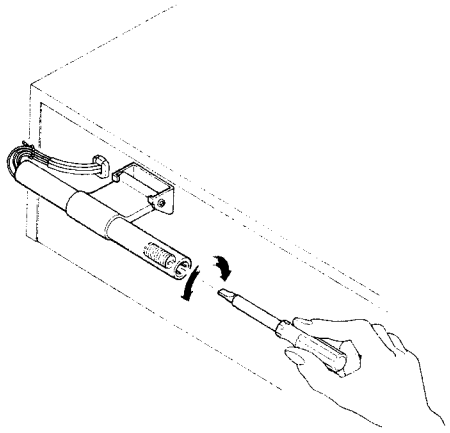
1) Set the input to the unit (i.e. voltage at the 300 ohm terminal of the external antenna) to 60 dB (This corresponds to 66 dB – 1.995 mV in terms of FM SG output).
2) Generate L-R signals by the stereo modulator and tune the unit completely to their level. (In this state, the distortion factor is reduced to a minimum.)
3) Switch the stereo modulator from R to L channels. Reduce signel output leakage of each channel to a minimum by adjusting R301 (SVR).
   * When making this adjustment, use a lowpass filter and eliminate 19 KHz and 38 KHz carrier components.
   * Make this adjustment after VCO and 19 KHz PILOT CANCELER adjustment.



MW TRACKING ADJUSTMENT

Connect VTVM to TP-12 (H) and TP-13 (E).

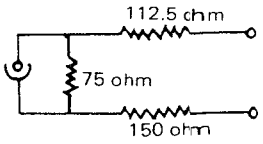
1) Set the frequency of MW SG to 600 KHz and the tuning dial of the unit to 600 KHz.
2) Set the position of BAR ANTENNA as requested and dress the leadwires of BAR ANTENNA before making adjustment.
3) Turn the core of L105 (BAR ANTENNA) until the output of the unit becomes maximum.
4) Set the frequency of MW SG to 1400 KHz and the tuning dial of the unit to 1400 KHz.
5) Turn CT-5 (VC TRIMMER) until the output of the unit becomes maximum.
6) Repeat the above steps from 1). until the output of the unit becomes maximum at both 600 KHz and 1400 KHz.
   NOTE: Use plastic screw driver for this adjustment.



FM ALIGNMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	I.F.	Connect sweep generator to FM TP-3 (H) & TP-4 (E) . . . shield plate	Connect oscilloscope to test point TP-5 (H), TP-17 (E)	10.7 MHz (0% modulation)	Near max. capacitance of tuning gang with no station signal.	T201	
2	Ratio Det.		Connect oscilloscope to test point TP-16 (H), TP-17 (E)			T202, T203	
3	OSC.	Connect FM SG. to FM ANT. Terminals or TP-1 (H) & TP-2 (E)	Connect VTVM to TP-9 TP-10 (H) & TP-11 (E)	87.4 MHz (400 Hz 30% modulation)	Low end of dial scale	L104	Max.
4				109.0 MHz (400 Hz 30% modulation)	High end of dial scale	CT-4	
5	ANT.	Connect FM SG. to FM ANT. Terminals or TP-1 (H) & TP-2 (E)	Connect VTVM to TP-9 TP-10 (H) & TP-11 (E)	90.0 MHz (400 Hz 30% modulation)	90.0 MHz on dial scale	L101, L102, L103	Max.
6				106.0 MHz (400 Hz 30% modulation)	106.0 MHz on dial scale	CT-1, CT-2, CT-3	
7	Repeat adjustments						

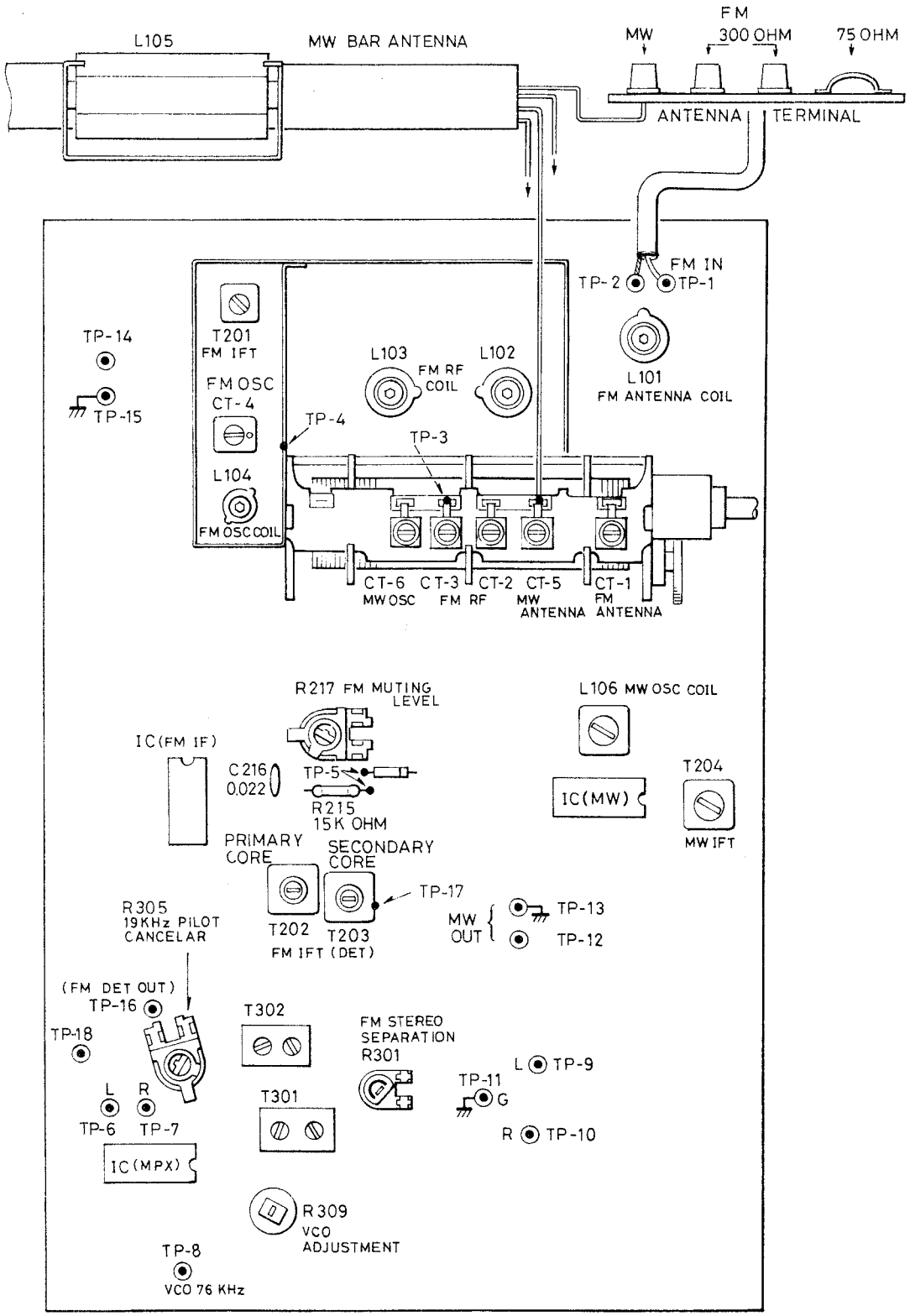
PREPARE:
1. Set the dial pointer to very left line of dial scale.
2. Connect sweep generator, FM SG. VTVM and oscilloscope. FM ANT input impedance is 300 ohm.
3. Use a screwdriver with plastic grip for all adjustments.
4. Use a 300 ohm balanced dummy load.



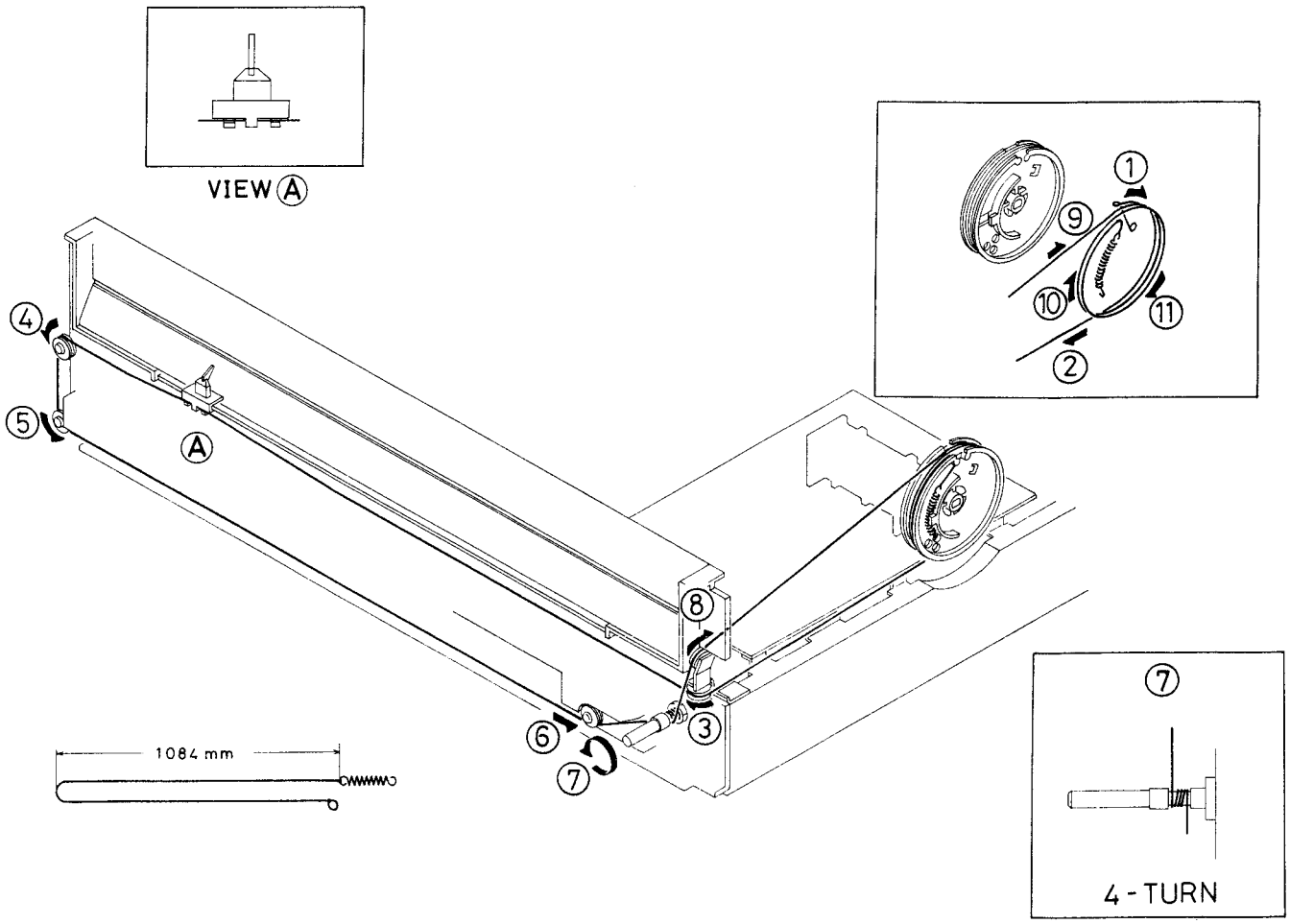
MW ALIGNMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	I.F.T.	Connect MW SG to test loop-antenna	Connect oscilloscope to TP-12 (H) & TP-13 (E)	460 KHz (400 Hz 30% modulation)	Low end of dial scale. With no station signal.	T204	Max.
2	OSC.	Connect MW SG to test loop-antenna	Connect VTVM to TP-12 (H) & TP-13 (E)	505 KHz (400 Hz 30% modulation)	Low end of dial scale	L106	Max.
3				1700 KHz (400 Hz 30% modulation)	High end of dial scale	CT-6	
4	ANT.	Connect MW SG to test loop-antenna	Connect VTVM to TP-12 (H) & TP-13 (E)	600 KHz (400 Hz 30% modulation)	600 KHz on dial scale	L105	Max.
5				1400 KHz (400 Hz 30% modulation)	1400 KHz on dial scale	CT-5	
6	Repeat adjustments.						

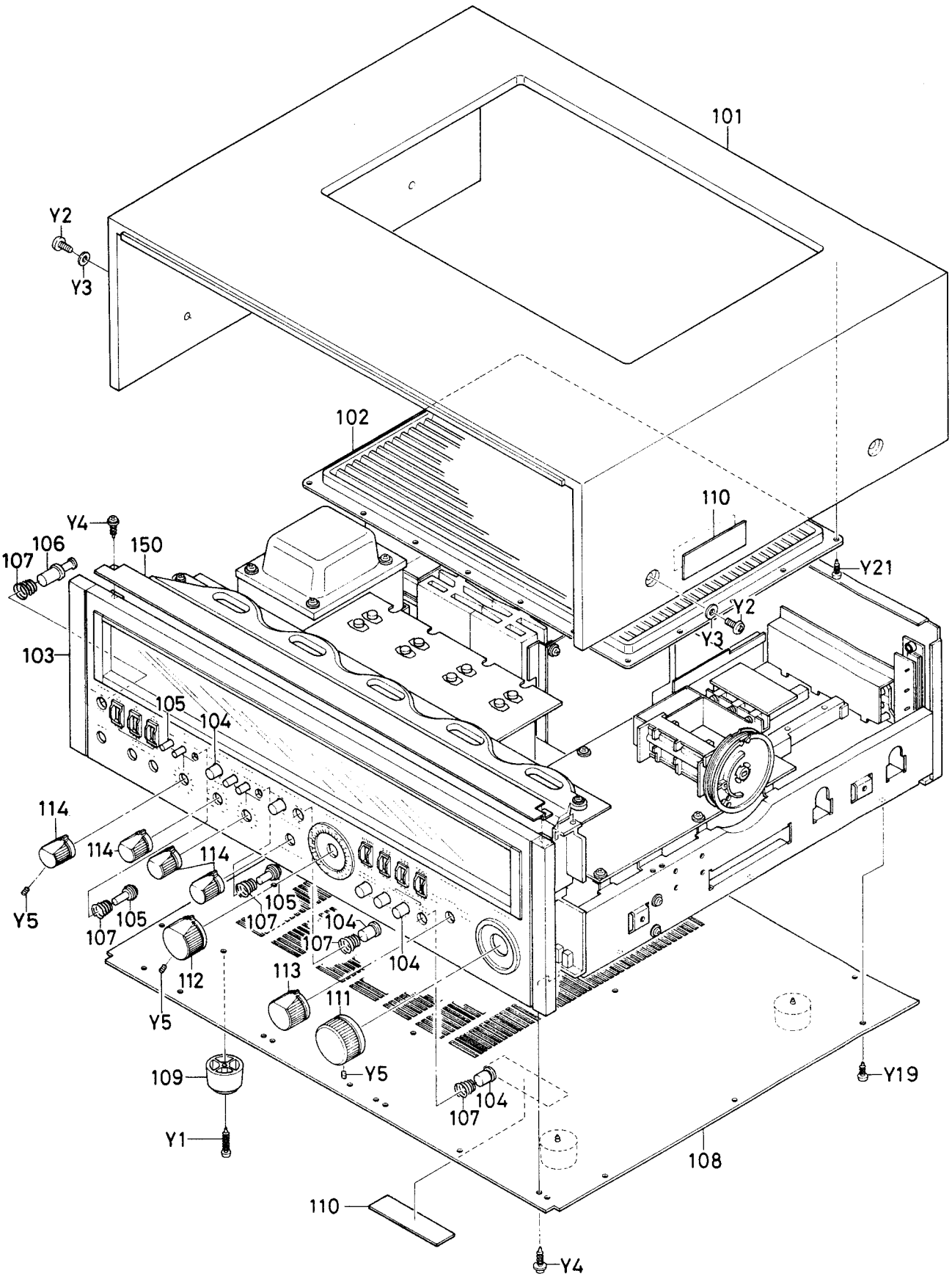
PREPARE:
1. Set the dial pointer to very left line on dial scale.
2. Use a screwdriver with plastic grip for all adjustments.
3. Selector switch to "MW".
4. Connect sweep generator, MW SG, VTVM and oscilloscope.


L105
MW BAR ANTENNA
FM
MW
300 OHM
75 OHM
ANTENNA TERMINAL
FM IN
TP-2
TP-1
L101
FM ANTENNA COIL
TP-14
TP-15
T201
FM IFT
FM OSC
CT-4
L104
FM OSC COIL
L103
FM RF
COIL
L102
TP-4
TP-3
CT-6
MW OSC
CT-3
FM RF
CT-2
CT-5
MW
ANTENNA
CT-1
FM
ANTENNA
R217 FM MUTING
LEVEL
L106 MW OSC COIL
IC(FM IF)
C216
0.022
TP-5
R215
15K OHM
IC(MW)
T204
MW IFT
PRIMARY
CORE
SECONDARY
CORE
TP-17
R305
19KHz PILOT
CANCELAR
T202
T203
FM IFT (DET)
MW
OUT
TP-13
TP-12
(FM DET OUT)
TP-16
TP-18
T302
FM STEREO
SEPARATION
R301
L
TP-9
TP-11
G
R
TP-10
L
R
TP-6
TP-7
T301
IC(MPX)
R309
VCO
ADJUSTMENT
TP-8
VCO 76 KHz

DIAL CORD STRINGING



CABINET EXPLODED VIEW



PARTS LIST

Ref. No.	Part No.	Description	Q'ty
PACKING			
	141-6-132T-91600	Individual Carton	1
	141-6-316T-94700	Pad	2
	141-6-316T-94800	Pad	2
	141-6-230T-25350	Inner Polyethylene Bag, Inst. B	1
	123-6-453R-00100	Inspection Sheet	2
	141-6-231T-07000	Inner Polyethylene Bag, Set	1
	141-6-231T-10250	Inner Polyethylene Bag, Power Cord	1
	141-6-230T-06100	Inner Polyethylene Bag, Spanner	1
ACCESSARY			
	141-6-410T-15300	Instruction Book	1
	141-2-419T-00200	Spanner, Rotary Knob	1
	4-245T-00171	Antenna, AM	1
CABINET			
101	141-0-111T-34600	Cabinet Assy	1
102	141-9-242T-00200	Lattice Assy	1
103	141-0-122T-22602	Front Panel Assy	1
104	141-0-161T-50700	Push Button Assy (141-9-161T-03400)	7
105	141-0-161T-50800	Push Button Assy (141-9-161T-03500)	6
106	141-0-161T-05701	Push Button Assy, Power Switch (141-9-161T-03600)	1
107	141-2-855T-21500	Spring Coil	14
108	141-0-125T-13900	Bottom Lid Assy	1
109	141-0-174T-06900	Stand Assy (141-9-174T-00700)	4
110	141-6-472T-14900	Caution Label	2
111	141-2-163T-48700	Rotary Knob, Tuning	1
112	141-0-163T-48800	Rotary Knob Assy, Volume (141-9-163T-05200)	1
113	141-0-163T-39600	Rotary Knob Assy, Function (141-0-163T-12400)	1
114	141-0-163T-43300	Rotary Knob Assy, Tone (141-9-163T-02800)	4
CHASSIS			
121	141-2-126T-26400	Back Lid	1
122	141-2-315T-15400	Reinforcement, Left.	1
123	141-2-315T-15500	Reinforcement, Right	1
124	141-2-315T-15600	Reinforcement, Front	1
125	141-2-315T-15700	Reinforcement, Center	1
126	141-2-310T-10200	Bracket, PT	1
127	141-0-214T-02400	Bracket, Frame Assy	1
128	141-2-421T-20900	Special Screw	5
129	141-2-661T-71300	Pulley, Dial	5
130	141-2-310T-09700	Bracket Pre AMP PCB	1
131	141-2-310T-09800	Bracket, Main AMP PCB	2
132	141-2-310T-09900	Bracket, Heat Sink	2
133	141-2-310T-10300	Bracket, Pulley	1
134	141-2-310T-10500	Bracket, Power SW PCB	1
135	141-2-210T-07200	Bracket	1
136	141-2-368T-13900	Heat Sink	2
137	141-2-310T-10000	Bracket, SP Socket PCB	1
138	141-2-365T-39300	Bracket, SP Switch	1
139	141-2-365T-39400	Bracket, Lever Switch	1
140	141-2-464T-14400	Fixer	2
141	141-2-382T-09800	Terminal	2
142	141-0-566T-07200	Tuning Shaft Assy (141-0-566T-05000)	1
143	141-2-369T-05400	Bracket, ANT Coil	1
144	141-2-243T-02700	Base	2
145	141-2-464T-20700	Fixer	2
146	141-2-464T-24000	Fixer	7
147	141-2-464T-08700	Fixer	12
148	141-2-464T-20600	Fixer	12
149	141-2-329T-05400	Refrector, Dial	1
150	141-2-328T-05600	Shield Light	1
151	141-2-153T-40501	Escutcheon, Dial Right Side	1
152	141-2-447T-16800	Cushion	1
153	141-2-329T-05600	Refrector, Stereo Lamp	1
154	141-2-153T-40500	Escutcheon, Dial Left Side	1
155	141-2-472T-03700	Lug	2
156	141-2-464T-20671	Fixer	1
157	141-2-464T-20672	Fixer	1
158	141-0-146T-16302	Dial Scale Assy	1
159	141-0-511T-13000	Pointer Assy (141-9-511T-00800)	1
160	141-2-246T-12900	Sheet	1
161	141-2-538T-08700	Drum	1
162	141-2-855T-14800	Spring Coil	1
163	141-2-753T-33300	Shaft	3
164	141-2-253T-10900	Joint	3
165	141-0-162T-13900	Lever Knob Assy (141-9-162T-00300)	7
166	141-2-135T-53300	Cover	7
167	141-2-310T-09600	Bracket, PT	2
168	141-0-751T-36800	Shaft Assy, Function (141-0-751T-02600)	1
169	141-2-310T-11800	Bracket, Shaft Assy	1
170	141-2-253T-11700	Joint, Shaft Assy	1
171	141-2-340T-00200	Dial String	1
172	141-2-310T-16800	Bracket, Fuse P.C.B	1
173	141-2-327T-17900	Insulator, Switch P.C.B	1
SCREW MOUNTING			
Y1		Binding Head Tapping Screw 4 x 18 mm	4
Y2		Binding Head Screw 4 x 14 mm	4
Y3		Washer 4 x 13 x 1.2 mm	12
Y4		Tapping Screw with Washer 3 x 12 mm	6
Y5		Headless Screw with Hexagon Hole 3 x 4 mm	6
Y6		Tapping Screw 4 x 8 mm	8
Y7		Tapping Screw 3 x 6 mm	2
Y8		Hexagon Nut 4 mm	8
Y9		Hexagon Nut 10 mm	1
Y10		Tapping Screw with Washer 3 x 10 mm	84
Y11		Binding Head Tapping Screw 3 x 10 mm	30
Y12		External Toothlock Washer 3 mm	6
Y13		Tapping Screw 3 x 12 mm	4
Y14		Tapping Screw with Washer 3 x 16 mm	6
Y15		Binding Head Screw 3 x 10 mm	3
Y16		Pan Head Screw 3 x 50 mm	1
Y17		Spring Washer 3 mm	1
Y18		Binding Head Screw 3 x 8 mm	2
Y19		Tapping Screw 3 x 8 mm	17
Y20		Washer 3 mm	2
Y21		Round Head Wood Screw 3.1 x 10 mm	16
Y22		Pan Head Screw with Spring Washer 3 x 8 mm	16
Y23		Hexagon Nut 9 mm	1
Y24		Internal Toothlock Washer 4 mm	8
Y25		Pan Head Screw with Spring Washer 3 x 18 mm	16
Y26		Tapping Screw with Washer 3 x 8 mm	4
Y27		Hexagon Nut 3 mm	2
Y28		Binding Head Tapping Screw 3 x 8mm	1
ELECTRICAL PARTS			
201	4-251T-88100	Power Trans PT-1	1
202	4-251T-88000	Power Trans PT-2	1
203	4-235T-54600	Socket, Meter	1

Ref. No.	Part No.	Description	Q'ty
204	141-2-382T-09700	Terminal, Pre Power Connect	2
205	4-236T-13300	Plug, Phone	2
206	4-243T-81500	Power Cord	1
207	4-235T-39671	Socket	1
208	141-2-382T-07000	Terminal	3
209	4-511T-08200	Meter, Signal	1
210	4-511T-08300	Meter, Tuning	1
211	4-257T-24103	Antennal Coil Assy (L105)	1
212		Ceramic Capacitor 220PF ±10% 50V, C132	1
213	4-163T-01201	Capacitor Assy, 71V 10000μF x 2	2
214		Transistor 2SD551 (Q712, 713, 812, 813)	4
215		Transistor 2SB681 (Q714, 715, 814, 815)	4
216	4-235T-52200	Socket, Power TR	8
217	4-235T-52100	Socket, Power TR	1
218	4-235T-52171	Socket, Power TR	1
219	4-235T-52172	Socket, Power TR	1
220	4-235T-52173	Socket, Power TR	1
221	141-2-368T-13800	Heat Sink	4
222	4-235T-43400	Socket	1
223	141-2-368T-11000	Heat Sink	3
224	4-235T-51900	Socket 5P	1
225	4-235T-51800	Socket 4P	1
247	4-231T-78671	Switch, Voltage select	1
248	123-2-472R-01000	Lug	1

MAIN AMP LEFT CHANNEL PCB ASSY

226	141-4-230T-49071	PCB Assy, Main Amp Left Channel	1
	4-236T-12971	Plug	2
SVR701, 702	4-222T-62373	Semifixed Variable Resistor 1K	2
C713	4-223T-06400	Capacitor 0.047μF 150V	1
L701	4-265T-05800	V.H.F Coil	1
Q710		Transistor 2SC2238	1
Q711		Transistor 2SA968	1
Q705,706		Transistor 2SC1628 Y	2
Q707		Transistor 2SA818 Y	1
Q702,703, 704		Transistor 2SA942 BL	3
Q708		Transistor 2SC1175 E	1
Q709		Transistor 2SA659 E	1
D701,702, 704,705, 706,707		Diode DS442X	6
D708,709, 710		Diode DS442X	1
D703		Varystor STV-3H GR	1
	4-209T-01173	Pozistor	1
		CAPACITORS	
C704,705		Electrolytic, 100μF 80V	2
C708		Electrolytic, 220μF 16V	1
C702		Electrolytic, 1μF 50V	1
C709		Mylar, 0.1μF 50V ±20%	1
C710,711		Mylar, 0.015μF 50V ±20%	2
C712		Mylar, 0.047μF 50V ±20%	1
C703		Mylar, 470PF 50V ±10%	1
C706		Ceramic, 15PF 50V ±10%	1
		RESISTORS	
R728		Metal, 5.6ohm ±5% 1W	1
R714		Metal, 470ohm ±5% 1/2W	1
R708		Metal, 180ohm ±5% 1/2W	1
R715,718, 719		Metal, 150ohm ±5% 1/2W	3
R711,712		Metal, 100ohm ±5% 1/2W	2
R730		Metal, 56ohm ±5% 1/2W	1
R720,721		Metal, 10ohm ±5% 1/2W	2
R729		Metal, 10ohm ±5% 1W	1
R704,713		Carbon, 47Kohm ±5% 1/4W	2
R733		Carbon, 27Kohm ±10% 1/4W	1
R732		Carbon, 33Kohm ±5% 1/4W	1
R706,707		Carbon, 8.2Kohm ±5% 1/4W	2
R731		Carbon, 3.3Kohm ±5% 1/4W	1
R709		Carbon, 2.2Kohm ±5% 1/4W	1
R710		Carbon, 1.5Kohm ±5% 1/4W	1
R701,722, 723		Carbon, 1Kohm ±5% 1/4W	3
R705		Carbon, 470ohm ±5%1/4W	1
R716,717		Carbon, 82ohm ±5% 1/4W	2
R703		Carbon, 470Kohm ±5% 1/4W	1
R724,725, 726,727		Cement, 0.47ohm ±10% 5W	4

MAIN AMP RIGHT CHANNEL PCB ASSY

227	141-4-230T-49171	PCB Assy, Main Amp Right Channel	1
	4-236T-12971	Plug	2
SVR801, 802	4-222T-62373	Semi Fixed Variable Resistor 1K	2
C813	4-223T-06400	Capacitor 0.047μF 150V	1
L801	4-265T-05800	V.H.F Coil	1
Q810		Transistor 2SC2238	1
Q811		Transistor 2SA968	1
Q805,806		Transistor 2SC1628 Y	2
Q807		Transistor 2SA818 Y	1
Q802,803, 804		Transistor 2SA942 BL	3
Q808		Transistor 2SC1175 E	1
Q809		Transistor 2SA659 E	1
D801,802, 804,805, 806,807		Diode DS442X	6
D808		Diode DS442X	1
D803		Varystor STV-3H GR	1
	4-209T-01173	Pozistor	1
		CAPACITORS	
C804,805		Electrolytic, 100μF 80V	2
C808		Electrolytic, 220μF 16V	1
C802		Electrolytic, 1μF 50V	1
Q809		Mylar, 0.1μF 50V ±20%	1
C810,811		Mylar, 0.015μF 50V ±20%	2
C812		Mylar, 0.047μF 50V ±20%	1
C803		Mylar, 470PF 50V ±10%	1
C806		Ceramic, 15PF 50V ±10%	1
		RESISITORS	
R828		Metal, 5.6ohm ±5% 1W	1
R814		Metal, 470ohm ±5% 1/2W	1
R808		Metal, 180ohm ±5% 1/2W	1
R815,818, 819		Metal, 150ohm ±5% 1/2W	3
R811,812		Metal, 100ohm ±5% 1/2W	2
R830		Metal, 56ohm ±5% 1/2W	1
R870,821		Metal, 10ohm ±5% 1/2W	2
R829		Metal, 10ohm ±5% 1W	1
R804,813		Carbon, 47Kohm ±5% 1/4W	2
R832		Carbon, 33Kohm ±5% 1/4W	1
R806,807		Carbon, 8.2Kohm ±5% 1/4W	2
R831		Carbon, 3.3Kohm ±5% 1/4W	1
R809		Carbon, 2.2Kohm ±5% 1/4W	1
R810		Carbon, 1.5Kohm ±5% 1/4W	1
R801,822, 823		Carbon, 1Kohm ± 5% 1/4W	3
R805		Carbon, 470ohm ±5% 1/4W	1
R816,817		Carbon, 82ohm ±5% 1/4W	2
R803		Carbon, 470Kohm ±5% 1/4W	1
R824,825, 826,827		Cement, 0.47ohm ±10% 5W	4

Ref. No.	Part No.	Description	Q'ty
TONE AMP PCB ASSY			
228	141-4-230T-49200	PCB Assy, Tone Amp (140-9-230T-93200)	1
	4-222T-62200	Variable Resistor 100K-B	3
Q552,553, 652,653		Transistor 2SC1570 G	4
Q551,651		Transistor 2SA929 G	2
		CAPACITORS	
C554,654		Electrolytic, 100μF 10V	2
C566,567		Electrolytic, 220μF 25V	2
C556,564, 656,664		Electrolytic, 100μF 16V	4
C557,562, 565,657, 662,665		Electrolytic, 4.7μF 25V	6
C551,651		Electrolytic, 1.0μF 50V (Nonpolar)	2
C558,559, 658,659		Mylar, 0.022μF 50V ±5%	4
C560,561, 660,661		Mylar, 0.0047μF 50V ±5%	4
C552,553, 652,653		Ceramic, 47PF 50V ±10%	4
C555,563, 655,663		Ceramic, 12PF 50V ±10%	4
		RESISTORS	
R570,670		Carbon, 270Kohm ±5% 1/4W	2
R559,659		Carbon, 220Kohm ±5% 1/4W	2
R553,573, 653,673		Carbon, 100Kohm ±5% 1/4W	4
R554,654		Carbon, 56Kohm ±5% 1/4W	2
R563,663		Carbon, 27Kohm ±5% 1/4W	2
R562,662		Carbon, 22Kohm ±5% 1/4W	2
R560,561, 660,661		Carbon, 15Kohm ±5% 1/4W	4
R556,656		Carbon, 12Kohm ±5% 1/4W	2
R566,567, 666,667		Carbon, 6.8Kohm ±5% 1/4W	4
R564,565, 571,664, 665,671		Carbon, 5.6Kohm ±5% 1/4W	6
R557,657		Carbon, 4.7Kohm ±5% 1/4W	2
R572,672		Carbon, 3.9Kohm ±5% 1/4W	2
R558,658		Carbon, 2.7Kohm ±5% 1/4W	2
R555,655		Carbon, 1.8Kohm ±5% 1/4W	2
R568,668		Carbon, 1.2Kohm ±5% 1/4W	2
R551,651		Carbon, 560ohm ±5% 1/4W	2
R569,669		Carbon, 100Kohm ±5% 1/4W	2
R552,652		Carbon, 220Kohm ±5% 1/4W	2
TONE SWITCH PCB ASSY			
229	141-4-230T-49300	PCB Assy, Tone Switch (140-9-230T-93300)	1
S11,12	4-231T-73100	Push Switch	1
S9,10	4-231T-73200	Push Switch	1
S13,14	4-231T-73300	Push Switch	1
S7	4-231T-73900	Push Switch	1
Q581,681		Transistor 2SC1570 G	2
		CAPACITORS	
C592,692		Electrolytic, 4.7μF 25V	2
C591,691		Electrolytic, 1.0μF 50V	2
C589,590, 689,690		Mylar, 0.1μF 50V ±5%	4
C584,586, 684,686		Mylar, 0.068μF 50 ±5%	4
C585,587, 685,687		Mylar, 0.022μF 50V ±5%	4
C593,693		Mylar, 0.0082μF 50V ±5%	2
C580,581, 582,680, 681,682		Mylar, 0.0015μF 50V ±5%	6
C583,683		Mylar, 0.0015μF 50V ±5%	2
C588,688		Mylar, 470PF 50V ±10%	2
		RESISTORS	
R581,582, 583,681, 682,683		Carbon, 1Mohm ±5% 1/4W	6
R584,585, 586,684, 685,686		Carbon, 1Mohm ±5% 1/4W	6
R596,696		Carbon, 1Mohm ±5% 1/4W	2
R589,689		Carbon, 270Kohm ±5% 1/4W	2
R591,592, 691,692		Carbon, 220Kohm ±5% 1/4W	4
R594,694		Carbon, 100Kohm ±5% 1/4W	2
R588,688		Carbon, 39Kohm ±5% 1/4W	2
R593,693		Carbon, 4.7Kohm ±5% 1/4W	2
R590,595, 690,695		Carbon, 2.2Kohm ±5% 1/4W	4
R587,687		Carbon, 1Kohm ±5% 1/4W	2
VOLUME & BALANCE PCB ASSY			
230	141-4-230T-49400	PCB Assy, Volume & Balance (140-9-230T-93400)	1
	4-222T-62100	Variable Resistor, Volume	1
	4-222T-56600	Variable Resistor, Balance	1
		CAPACITORS	
C541,641		Ceramic, 220PF 50V ±10%	2
MUTING SWITCH PCB ASSY			
231	141-4-230T-49500	PCB Assy, Muting Switch (140-9-230T-93500)	1
	4-231T-73400	Special Switch	4
	4-235T-43400	Socket	1
		RESISTORS	
R542,642		Carbon, 47Kohm ±5% 1/4W	2
R541,641		Carbon, 5.6Kohm ±5% 1/4W	2
		CAPACITORS	
C342		Mylar, 0.0047μF 50V ±20%	1
LOUDNESS SWITCH PCB ASSY			
232	141-4-230T-49600	PCB Assy, Loudness Switch (140-9-230T-93600)	1
S	4-231T-74000	Push Switch	1
		CAPACITOR	
C542,642		Mylar, 0.082μF 50V ±5%	2
		RESISTORS	
R543,643		Carbon, 4.7Kohm ±5% 1/4W	2
R544,644		Carbon, 1Mohm ±5% 1/4W	2
MICROPHONE AMP PCB ASSY			
233	141-4-230T-49700	PCB Assy, Microphone Amp (140-9-230T-93700)	1
	141-2-322T-42200	Shield Plate	1
	4-235T-36700	Socket	2
Q521,621		Transistor 2SC1570 G	2

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
Q522,622		Transistor 2SA929 G	2
		CAPACITORS	
C528,628		Electrolytic, 33μF 25V	2
C524,525, 624,625		Electrolytic, 22μF 16V	4
C526,626		Electrolytic, 1.0μF 50V (Non Polar)	2
C521,621		Electrolytic, 1μF 50V	2
C523,623		Ceramic, 47PF 50V ±5%	2
C522,622		Ceramic, 470PF 50V ±10%	2
C527,627		Ceramic, 12PF 50V ±10%	2
		RESISTORS	
R523,623		Carbon, 220Kohm ±5% 1/4W	2
R530,630		Carbon, 100Kohm ±5% 1/4W	2
R525,625		Carbon, 56Kohm ±5% 1/4W	2
R526,626		Carbon, 12Kohm ±5% 1/4W	2
R521,621		Carbon, 10Kohm ±5% 1/4W	2
R528,628		Carbon, 4.7Kohm ±5% 1/4W	2
R529,629		Carbon, 2.7Kohm ±5% 1/4W	2
R522,622		Carbon, 2.2Kohm ±5% 1/4W	2
R524,624		Carbon, 100Kohm ±5% 1/4W	2
R527,627		Carbon, 470ohm ±5% 1/4W	2
HEADPHONE PCB ASSY			
234	141-4-230T-49800	PCB Assy, Headphone (140-9-230T-93800)	1
	4-235T-36771	Socket	1
SPEAKER SWITCH PCB ASSY			
235	141-4-230T-49971	PCB Assy, Speaker Switch (140-9-230T-93900)	1
	4-231T-73400	Special Switch	3
R401,402		Metal Resistor, 220ohm ±5% 1W	2
POWER SWITCH PCB ASSY			
236	141-4-230T-73500	PCB Assy, Power Switch	1
	4-231T-76472	Push Switch	1
	4-223T-04700	Capacitor 0.047μF 250V	2
	4-234T-02171	Fuse 250V 630mA	2
	141-2-381T-04200	Bracket Fuse	4
DC POWER SUPPLY PCB ASSY			
237	141-4-230T-50171	PCB Assy, DC Power Supply (140-9-230T-94100)	1
	141-2-382T-09200	Terminal	8
Q411		Transistor 2SC945 P	1
Q907		Transistor 2SB560 E	1
Q904		Transistor 2SD438 E	1
Q902		Transistor 2SD330 E	1
Q905		Transistor 2SB514 E	1
Q901		Transistor 2SD386 E	1
Q903		Transistor 2SC1175 E	1
Q906		Transistor 2SA659 E	1
D901,902		Diode M4C51	2
D903		Diode W02	1
D905,906		Diode XZ 132	2
D904		Diode WZ 135	1
D411~418		Diode DS 442X	8
D419		Diode YZ 047	1
		CAPACITORS	
C917,918		Electrolytic, 470μF 50V	2
C919		Electrolytic, 100μF 35V	1
C921,922		Electrolytic, 47μF 35V	2
C920		Electrolytic, 220μF 16V	1
C411		Electrolytic, 100μF 25V (Non Polar)	1
C923,924, 412		Electrolytic, 47μF 25V	3
C927		Electrolytic, 1000μF 16V	1
C901~906		Ceramic, 0.01μF 50V +100—0%	6
C925,926		Ceramic, 0.001μF 50V +80—20%	2
C907,908, 913,914, 915,916		Ceramic, 0.01μF 50V +100—0%	6
		RESISTORS	
R921,923		Metal, 150ohm ±5% 1/2W	2
R411,412		Metal, 470ohm ±5% 3W	2
R906		Metal, 100ohm ±5% 3W	1
R902,903, 904,905		Metal, 3.9Kohm ±5% 2W	4
R421,422		Metal, 680ohm ±5% 2W	2
R902,922, 420		Metal, 220ohm ±5% 1/2W	3
R909		Metal, 56ohm ±5% 1/2W	1
R908		Metal, 10ohm ±5% 1/2W	1
R416,419		Carbon, 220Kohm ±5% 1/4W	2
R417,418		Carbon, 33Kohm ±5% 1/4W	2
R910,911, 413,414		Carbon, 22Kohm ±5% 1/4W	4
R917,919		Carbon, 18Kohm ±5% 1/4W	2
R916,918		Carbon, 15Kohm ±5% 1/4W	2
R907		Carbon, 4.7Kohm ±5% 1/4W	1
R912,913, 914,915		Carbon, 2.2Kohm ±5% 1/4W	4
R415		Carbon, 1Kohm ±5% 1/4W	1
SPEAKER TERMINAL PCB ASSY			
238	141-4-230T-50200	PCB Assy, Speaker Terminal (140-9-230T-94200)	1
	4-232T-05200	Relay } or	3
	4-232T-05271	Relay }	
	4-237T-07071	Terminal Board	3
Q432		Transistor 2SD438 E	1
Q431,433		Transistor 2SC945 P	2
D431,432, 433		Diode 1N4002 or 1N4003	3
D434,435, 436,437, 438,439, 440		Diode 1S2472	7
		CAPACITORS	
C431		Electrolytic, 1μF 50V	1
C432,433, 434		Electrolytic, 0.47μF 50V (Non Polar)	3
		RESISTOR	
R431		Carbon, 47Kohm ±5% 1/4W	1
R432,433, 435,439		Carbon, 22Kohm ±5% 1/4W	4
R434		Carbon, 1.8Kohm ±10% 1/4W	1
R436		Carbon, 100Kohm ±5% 1/4W	1
R437		Carbon, 33Kohm ±5% 1/4W	1
R438		Carbon, 27Kohm ±5% 1/4W	1
PHONO AMP PCB ASSY			
239	141-4-230T-50371	PCB Assy, Phono Amp (140-9-230T-94300)	1
S1	4-231T-74100	Rotary Switch	1

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
S2,3,4	4-231T-73800	Push Switch	1
	141-2-322T-42300	Shield Plate	1
	4-235T-45700	Socket, Phono 1, 2, AUX	1
	4-235T-48400	Socket, Tape 1, 2	2
	4-236T-10273	Plug 6 Pin	1
D501,601		Diode 1N4001	2
IC501,601		IC HA 1457	2
		CAPACITORS	
C510,511		Electrolytic, 470 μF 25V	2
C501,601		Electrolytic, 4.7μF 25V	2
C509,609		Electrolytic, 1μF 50V (Non Polar)	2
C503,603		Electrolytic, 47μF 16V	2
C506,606		Styrol, 6800PF 50V ±2%	2
C507,607		Styrol, 1800PF 50V ±2%	2
C508,608		Styrol, 130PF 50V ±5%	2
C504,604		Ceramic, 100PF 50V ±10%	2
C502,602		Ceramic, 47PF 50V ±10%	2
C505,605		Ceramic, 22PF 50V ±10%	2
C512,513, 514,515		Ceramic, 0.01μF 50V +80−20%	4
		RESISTORS	
R505,605		Metal, 510Kohm ±1% 1/4W	2
R506,606		Metal, 39Kohm ±1% 1/4W	2
R503,603		Carbon, 100Kohm ±5% 1/4W	2
R502,602		Carbon, 2.2Kohm ±5% 1/4W	2
R501,508, 601,608		Carbon, 100Kohm ±5% 1/4W	4
R511,611		Carbon, 3.3Kohm ±5% 1/4W	2
R509,510 609,610		Carbon, 2.2Kohm ±5% 1/4W	4
R504,604		Carbon, 820ohm ±5% 1/4W	2
R507,607		Carbon, 560ohm ±5% 1/4W	2
DIN PCB ASSY			
240	141-4-230T-50501	PCB Assy, DIN	1
	4-235T-53200	Socket	1
		RESISTORS	
R512,612		Carbon, 270K ohm ±5% 1/4W	2
SPEAKER INDICATOR PCB ASSY			
241	141-4-230T-50671	PCB Assy, Speaker Indicator (140-9-230T-94500)	1
	4-612T-08100	Lamp, 6.3V 65mA	3
FUNCTION INDICATOR PCB ASSY			
242	141-4-230T-50771	PCB Assy, Function Indicator (140-9-230T-94600)	1
	4-235T-52400	Socket	1
	4-612T-08100	Lamp, 6.3V 65mA Function	5
	4-612T-08200	Lamp, 6V 30mA Stereo	1
DIAL LIGHT PCB ASSY			
243	141-4-230T-50801	PCB Assy, Dial Light	1
	4-612T-07371	Lamp 6.3V 300mA	5
	4-237T-00171	Terminal Board	7
	4-234T-03671	Fuse 2A 250V	1
	141-2-381T-04200	Bracket, Fuse	2
	141-6-476T-11200	Label, Fuse	1
FUSE PCB ASSY			
244	141-4-230T-73400	PCB Assy, Fuse	1
	4-234T-03671	Fuse 250A 4A	4
	141-2-381T-04200	Bracket Fuse	8

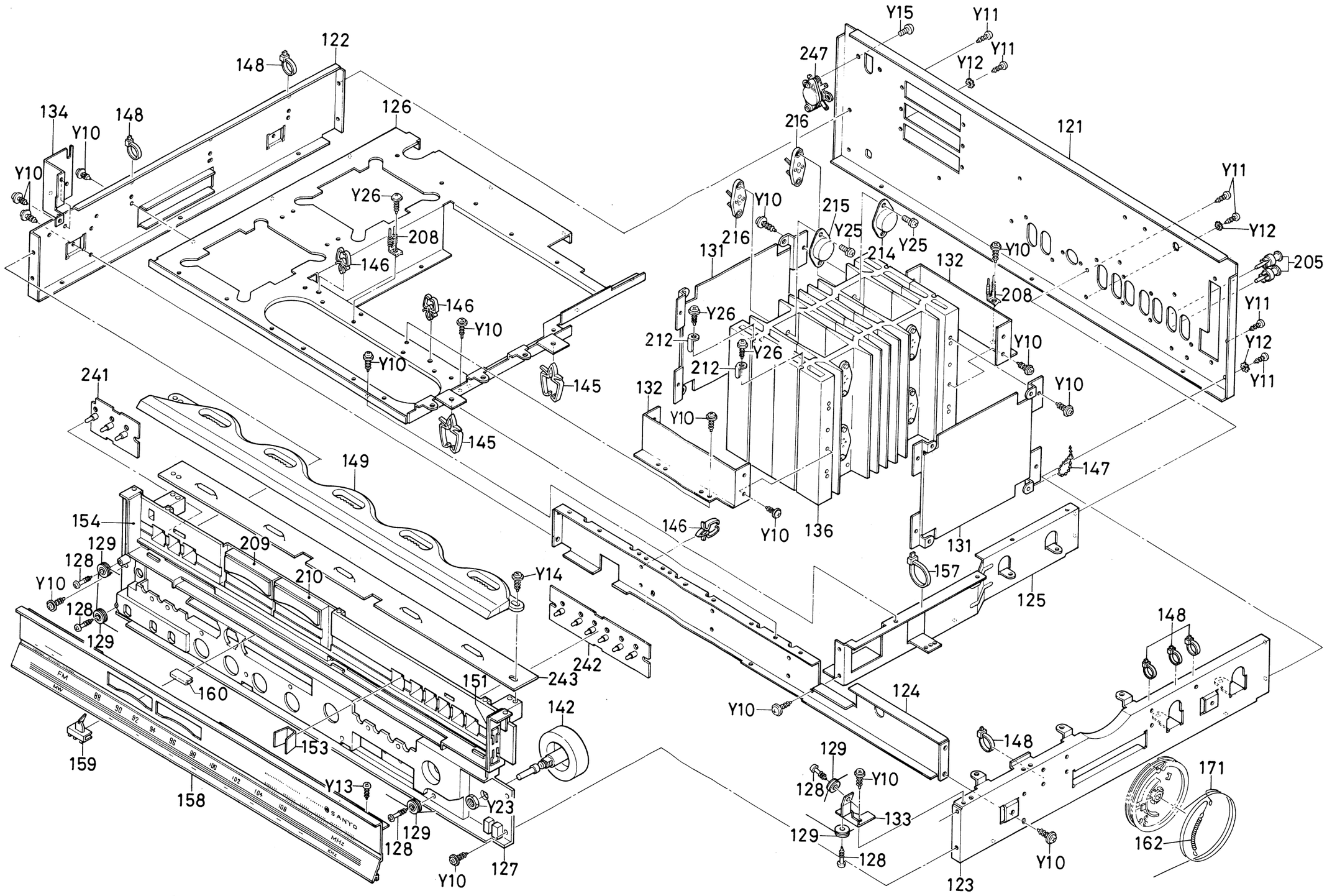
Ref. No.	Part No.	Description	Q'ty
ANTENNA PCB ASSY			
245	141-4-230T-48800	PCB Assy, Antenna (140-9-230T-81200)	1
T101	4-268T-00100	VHF Coil Trans	1
	141-2-382T-07700	Terminal, Antenna	1
	141-2-464T-08700	Fixer	2
TUNER PCB ASSY			
246	141-4-230T-48705	PCB Assy, Tuner	1
L101	4-265T-03700	VHF Coil	1
L102	4-265T-50300	VHF Coil	1
L103	4-265T-50400	VHF Coil	1
L104	4-265T-03900	VHF Coil	1
T201	4-256T-05140	I.F.T	1
T202	4-256T-10100	I.F.T	1
T203	4-256T-10200	I.F.T	1
T204	4-256T-10930	I.F.T	1
L201	4-253T-10600	Filter	1
L106	4-258T-15540	OSC Coil	1
	4-224T-11100	Variable Capacitor	1
L107,L202	4-253T-08600	Hi-frequ Choke	2
T301,T302	4-255T-01400	MPX Coil	2
R217	4-222T-39476	Semifixed Variable Resistor 20K-B	1
R301	4-222T-39577	Semifixed Variable Resistor 50K	1
R309	4-222T-62080	Semifixed Variable Resistor 3.3K	1
	4-236T-10271	Plug, Meter	1
	4-236T-10271	Plug, Switch	1
	141-2-322T-41900	Shield Plate	1
	141-2-322T-42000	Shield Plate	1
CF1,2,3	4-256T-81000	IF Filter	3
	4-256T-81071	IF Filter	
	4-256T-81072	IF Filter or	
	4-256T-81073	IF Filter	
	4-256T-81074	IF Filter	
R305	4-222T-39478	Semifixed Variable Resistor 100K-B	1
L203,204	4-253T-08600	Hi-frequ Choke	2
	4-236T-10271	Plug, Function Switch	1
	4-236T-10272	Plug, Meter Switch	1
CF4	4-256T-80971	IF Filter	1
	141-2-323T-00500	Shield Box, L101	1
CT4	4-224T-08800	Trimmer	1
Q101		Transistor 3SK59 GR	1
Q102		Transistor 2SC535 B	1
Q103		Transistor 2SC930 ECONV	1
Q301		Transistor 2SC536 AUD	1
Q302		Transistor 2SC536 C AUD	1
Q361		Transistor 2SC945 P	2
Q362,363		Transistor 2SC945	1
Q360		Transistor 2SC945 P	1
Q351		Transistor 2SC945 P	1
Q358, 357		Transistor 2SD655 E	1
Q306,308		Transistor 2SA702 F ALF	2
Q305,359, 304		Transistor 2SC536 C AUD	3
Q307,309		Transistor 2SC1571G AUD	2
Q352,353		Transistor 2SC536 C AUD	2
Q354		Transistor 2SC536 AUD	1
Q355		Transistor 2SA608 E	1
Q364		Transistor 2SC536 C AUD	1
D102,103		Diode 1S2473	2
D101		Diode 1S2473 or DS442X	1
D201		Diode 1S2473 or DS442X	1
D104,202		Diode 1S188 FM	2
D203		Diode MA26	1
D364,351		Diode 1S2473 or DS442X	2
D356,357		Diode 1S2473 or DS442X	2
D362		Diode 1S2473 or DS442X	1
D359,360, 361		Diode 1S2473 or DS442X	3

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
D363,204		Diode 1S2473 or DS442X	2
D354,353		Diode 1S2472	2
D355		Diode 1S188 FM	1
D205		Diode 1S2473	1
D358		Diode 1S2473 or DS442X	1
D365		Diode 1S2473 or DS442X	1
IC1		IC HA-1138	1
IC2		IC LA-1222	1
IC3		IC HV-1137W	1
IC4		IC HA-11223	1
		CAPACITORS	
C130		Ceramic, 1PF 50V ±0.25PF	1
C110		Ceramic, 2PF 50V ±0.25PF	1
C106		Ceramic, 7PF 50V ±0.25PF	1
C113		Ceramic, 6PF 50V ±0.25PF	1
C101		Ceramic, 12PF 50V ±10%	1
C104		Ceramic, 15PF 50V ±10%	1
C105		Ceramic, 18PF 50V ±10%	1
C126		Ceramic, 10PF 50V ±10%	1
C112		Ceramic, 20PF 50V ±5%	1
C115		Ceramic, 15PF 50V ±5%	1
C114		Ceramic, 33PF 50V ±10%	1
C209		Ceramic, 33PF 50V ±10%	1
C223		Ceramic, 0.01μF 50V +80−20%	1
C225		Ceramic, 56PF 50V ±5%	1
C111		Ceramic, 100PF 50V ±10%	1
C227		Ceramic, 220PF 50V ±10%	1
C102		Ceramic, 0.001μF 50V ±10%	1
C103,131		Ceramic, 0.001μF 50V ±10%	2
C109,117, 116		Ceramic, 0.01μF 50V +80−20%	3
C108,123, 122		Ceramic, 0.01μF 50V +80−20%	3
C119,201, 202,203, 204,205		Ceramic, 0.01μF 50V +80−20%	6
C221,107		Ceramic, 0.01μF 50V +80−20%	2
C118,124, 216		Ceramic, 0.022μF 50V +80−20%	3
C127,206, 207		Ceramic, 0.047μF 50V +80−20%	3
C208,212, 214		Ceramic, 0.047μF 50V +80−20%	3
C215		Ceramic, 0.047μF 50V +80−20%	1
C218,222		Ceramic, 0.01μF 50V +80−20%	2
C217,224		Ceramic, 0.01μF 50V +80−20%	2
C129		Ceramic, 0.001μF 50V ±10%	1
C304		Stylol, 1000PF 125V ±5%	1
C125		Styrol, 300PF 125V ±5%	1
C120		Mylar, 0.01μF 50V ±20%	1
C128,309		Mylar, 0.01μF 50V ±20%	2
C229		Mylar, 0.027μF 50V ±20%	1
C228		Mylar, 0.01μF 50V ±20%	1
C230		Mylar, 0.068μF 50V ±20%	1
C305		Mylar, 0.0022μF 50V ±10%	1
C308		Mylar, 0.0015μF 50V ±10%	1
C322,332		Mylar, 0.022μF 50V ±5%	2
C321,331		Mylar, 0.0033μF 50V ±10%	2
C303		Mylar, 0.047μF 50V ±20%	1
C314		Electrolytic, 470μF 16V	1
C313		Electrolytic, 220μF 16V	1
C213,232		Electrolytic, 100μF 16V	2
C121		Electrolytic, 10μF 16V	1
C226		Electrolytic, 33μF 10V	1
C210,219		Electrolytic, 1μF 50V	2
C220		Electrolytic, 0.47μF 50V	1
C211		Electrolytic, 4.7μF 25V	1
C302		Electrolytic, 2.2μF 50V	1
C310,307		Electrolytic, 3.3μF 25V	2
C323,333		Electrolytic, 0.47μF 50V	2
C306		Al Electrolytic, 0.47μF 10V ±20%	1
C312,311		Al Electrolytic, 0.33μF 10V ±20%	2
C315		Electrolytic, 0.47μF 50V	1
C354		Electrolytic, 0.47μF 50V ±20% (Non Polar)	1
C352		Electrolytic, 100μF 35V	1
C351		Electrolytic, 10μF 35V	1
C355		Electrolytic, 1μF 50V	1
C233		Electrolytic, 47μF 10V	1
C231		Electrolytic, 47μF 10V	1
C356		Electrolytic, 0.47μF 50V ±20% (Non Polar)	1
C357		Electrolytic, 0.47μF 50V	1
C234		Al Electrolytic, 0.1μF 10V	1
		RESISTORS	
R102		Carbon, 10ohm ±5% 1/4W	1
R203		Carbon, 560ohm ±5% 1/4W	1
R113		Carbon, 100ohm ±5% 1/4W	1
R324,334		Carbon, 270ohm ±5% 1/4W	2
R368		Carbon, 270ohm ±5% 1/4W	1
R227		Carbon, 330ohm ±5% 1/4W	1
R202,206		Carbon, 330ohm ±5% 1/4W	2
R205,207		Carbon, 330ohm ±5% 1/4W	2
R210		Carbon, 470ohm ±5% 1/4W	1
R201		Carbon, 330ohm ±5% 1/4W	1
R381		Carbon, 1Kohm ±5% 1/4W	1
R360		Carbon, 1Kohm ±5% 1/4W	1
R342		Carbon, 1Kohm ±5% 1/4W	1
R230		Carbon, 1Kohm ±5% 1/4W	1
R105		Carbon, 1Kohm ±5% 1/4W	1
R306,220		Carbon, 1Kohm ±5% 1/4W	2
R321,331		Carbon, 1.2Kohm ±5% 1/4W	2
R379		Carbon, 1Kohm ±5% 1/4W	1
R204		Carbon, 2.2Kohm ±5% 1/4W	1
R226,213		Carbon, 2.2Kohm ±5% 1/4W	2
R208		Carbon, 2.2Kohm ±5% 1/4W	1
R110,115		Carbon, 2.7Kohm ±5% 1/4W	2
R225		Carbon, 3.3Kohm ±5% 1/4W	1
R311		Carbon, 3.3Kohm ±5% 1/4W	1
R325,335		Carbon, 3.3Kohm ±5% 1/4W	2
R209		Carbon, 3.9Kohm ±5% 1/4W	1
R303,304		Carbon, 3.9Kohm ±5% 1/4W	2
R223		Carbon, 1.8Kohm ±5% 1/4W	1
R320		Carbon, 5.6Kohm ±5% 1/4W	1
R332		Carbon, 5.6Kohm ±5% 1/4W	1
R104		Carbon, 5.6Kohm ±5% 1/4W	1
R343		Carbon, 5.6Kohm ±5% 1/4W	1
R356		Carbon, 8.2Kohm ±5% 1/4W	1
R352		Carbon, 8.2Kohm ±5% 1/4W	1
R231		Carbon, 8.2Kohm ±5% 1/4W	1
R372		Carbon, 10Kohm ±5% 1/4W	1
R373		Carbon, 10Kohm ±5% 1/4W	1
R374		Carbon, 10Kohm ±5% 1/4W	1
R111,308		Carbon, 10Kohm ±5% 1/4W	2
R211		Carbon, 12Kohm ±5% 1/4W	1
R322		Carbon, 5.6Kohm ±5% 1/4W	1
R103,107		Carbon, 150ohm ±5% 1/4W	2
R109,222		Carbon, 150ohm ±5% 1/4W	2
R114		Carbon, 680ohm ±5% 1/4W	1
R330		Carbon, 5.6Kohm ±5% 1/4W	1
R340		Carbon, 270ohm ±5% 1/4W	1
R112		Carbon, 10Kohm ±5% 1/4W	1
R377		Carbon, 47ohm ±5% 1/4W	1
R378		Carbon, 15Kohm ±5% 1/4W	1
R317		Carbon, 22Kohm ±5% 1/4W	1
R317		Carbon, 27Kohm ±5% 1/4W	1
R233		Carbon, 100Kohm ±5% 1/4W	1
R232		Carbon, 150Kohm ±5% 1/4W	1
R218		Carbon, 12Kohm ±5% 1/4W	1
R361		Carbon, 22Kohm ±5% 1/4W	1
R363		Carbon, 150Kohm ±5% 1/4W	1

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
R108,221, 212		Solid, 56ohm ±10% 1/2W	3
R314,315		Solid, 56ohm ±10% 1/2W	2
R312		Solid, 100ohm ±10% 1/2W	1
R337,327		Carbon, 27Kohm ±5% 1/4W	2
R216		Carbon, 47Kohm ±5% 1/4W	1
R215		Carbon, 15Kohm ±5% 1/4W	1
R354		Carbon, 15Kohm ±5% 1/4W	1
R302		Carbon, 18Kohm ±5% 1/4W	1
R365		Carbon, 22Kohm ±5% 1/4W	1
R366		Carbon, 22Kohm ±5% 1/4W	1
R359		Carbon, 22Kohm ±5% 1/4W	1
R323,333		Carbon, 27Kohm ±5% 1/4W	2
R353		Carbon, 27Kohm ±5% 1/4W	1
R307,369		Carbon, 33Kohm ±5% 1/4W	2
R106,224		Carbon, 39Kohm ±5% 1/4W	2
R101,214		Carbon, 47Kohm ±5% 1/4W	2
R370		Carbon, 47Kohm ±5% 1/4W	1
R357		Carbon, 47Kohm ±5% 1/4W	1
R362		Carbon, 68Kohm ±5% 1/4W	1
R116		Carbon, 56Kohm ±5% 1/4W	1
R341		Carbon, 10Kohm ±5% 1/4W	1
R358		Carbon, 82Kohm ±5% 1/4W	1
R345		Carbon, 82Kohm ±5% 1/4W	1
R375		Carbon, 82Kohm ±5% 1/4W	1
R376		Carbon, 100Kohm ±5% 1/4W	1
R344		Carbon, 100Kohm ±5% 1/4W	1
R336,326		Carbon, 100Kohm ±5% 1/4W	2
R228		Carbon, 100Kohm ±5% 1/4W	1
R229,219		Carbon, 100Kohm ±5% 1/4W	2
R371		Carbon, 150Kohm ±5% 1/4W	1
R310		Carbon, 220Kohm ±5% 1/4W	1
R117		Carbon, 330Kohm ±5% 1/4W	1
R367		Carbon, 39Kohm ±5% 1/4W	1
R355		Carbon, 10ohm ±5% 1/4W	1
R380		Carbon, 22Kohm ±5% 1/4W	1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Y10
Y26
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Y10
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128
Y10
128
129
209
210
Y14
243
242
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153
142
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158
Y13
Y23
129
128
Y10
127
FM
MW
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92
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108
SANYO
MHz
KHz
Y15
Y11
Y11
Y12
247
216
121
Y11
Y10
215
Y25
Y25
Y12
205
216
131
214
132
Y10
208
Y11
Y26
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Y26
Y10
212
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Y10
147
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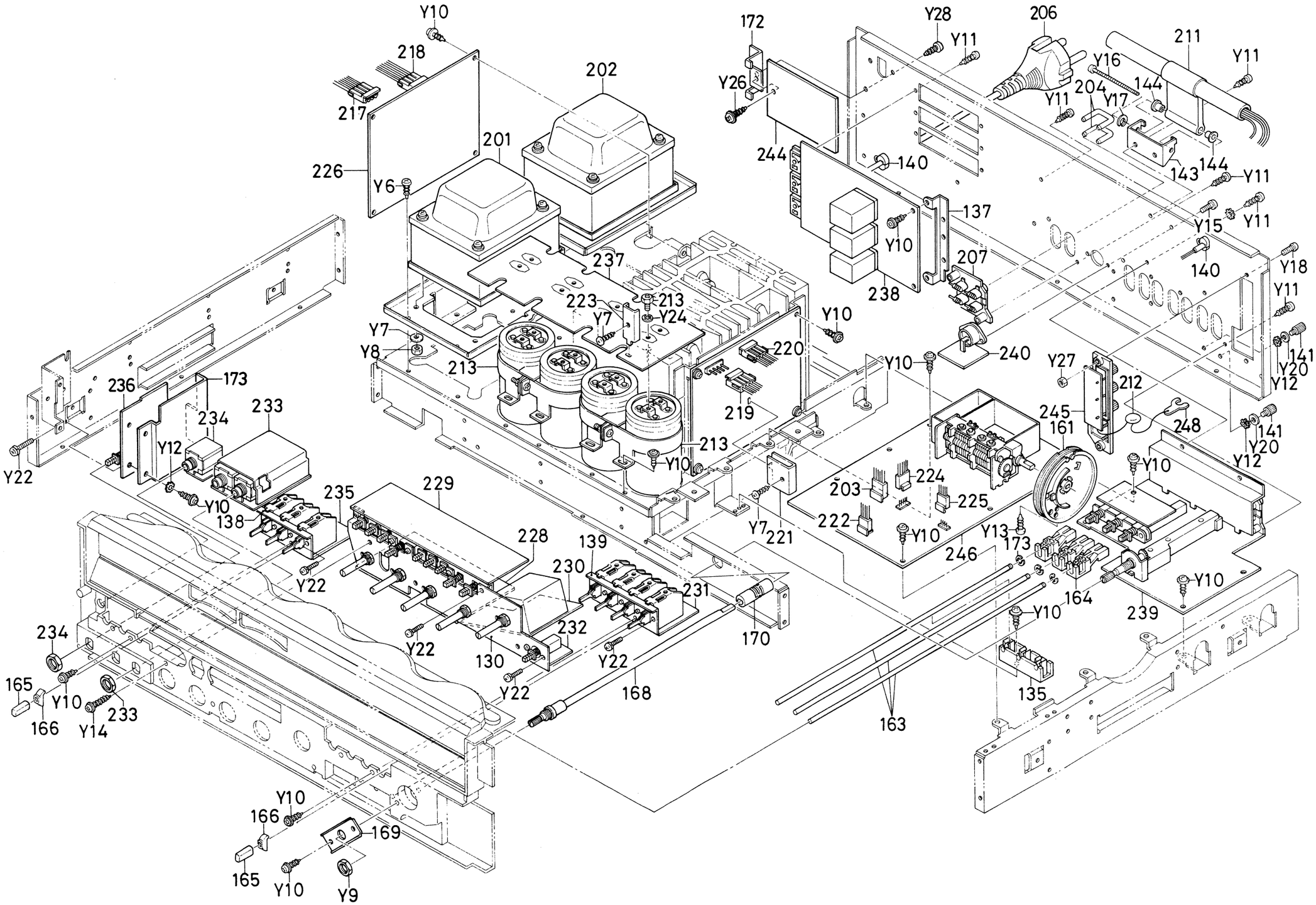
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Y6
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Y28
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Y16
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143
Y15
137
Y10
238
207
240
Y18
141
Y20
Y12
212
245
161
248
237
223
213
Y24
Y7
Y8
220
219
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Y10
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Y12
Y22
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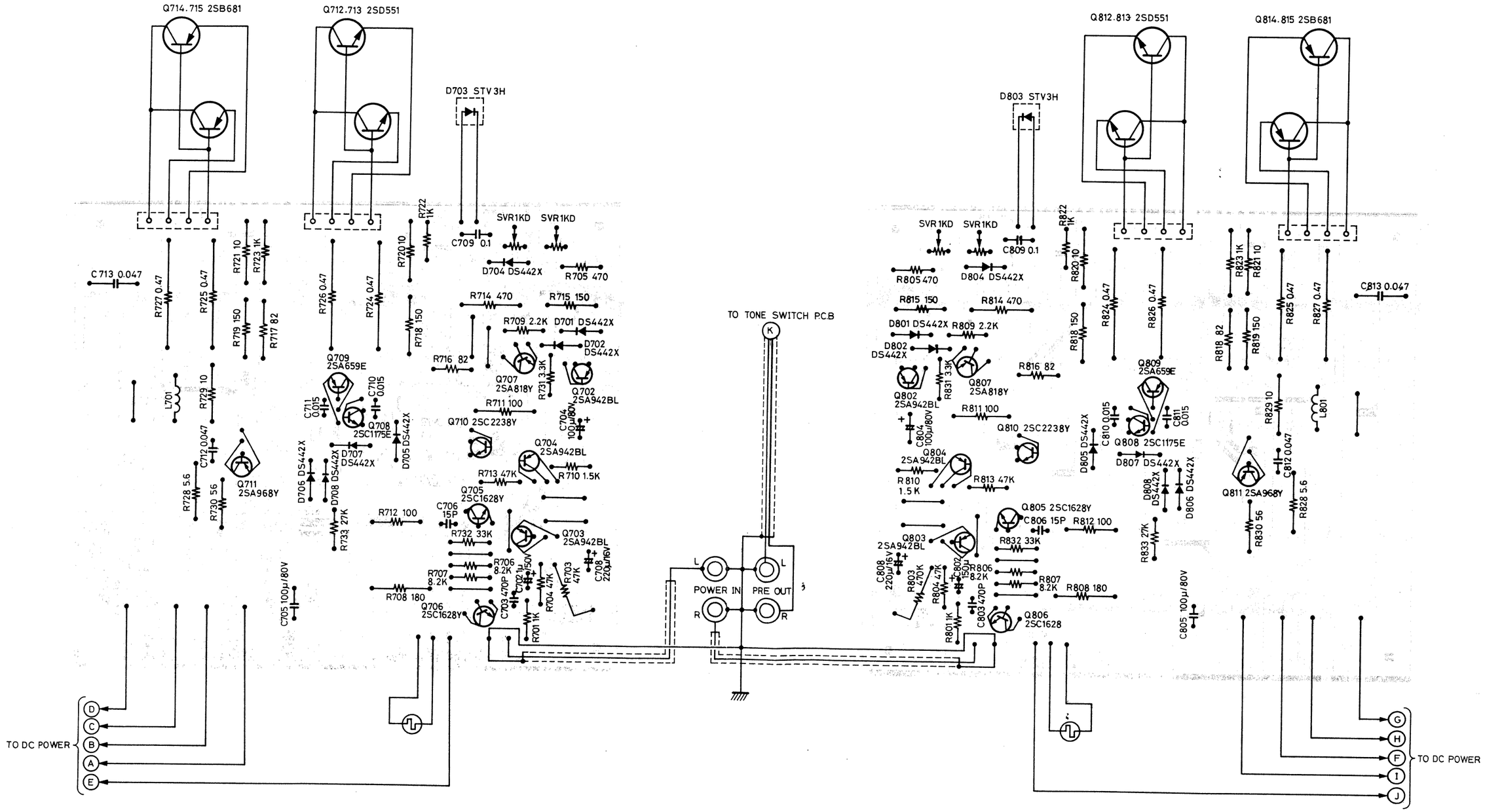
169
Y9


Q714.715 2SB681
Q712.713 2SD551
Q812.813 2SD551
Q814.815 2SB681
D703 STV3H
D803 STV3H
SVR1KD
SVR1KD
C709 0.1
C809 0.1
D704 DS442X
D804 DS442X
R705 470
R805 470
R722 1K
R822 1K
R727 0.47
R725 0.47
R726 0.47
R724 0.47
R720 10
R721 10
R723 1K
R719 150
R717 82
R718 150
R820 10
R824 0.47
R826 0.47
R823 1K
R821 10
R818 82
R819 150
R825 0.47
R827 0.47
C713 0.047
C813 0.047
R714 470
R715 150
R815 150
R814 470
R709 2.2K
D701 DS442X
D801 DS442X
R809 2.2K
D702 DS442X
D802 DS442X
R716 82
R816 82
Q709 2SA659E
Q809 2SA659E
Q707 2SA818Y
Q807 2SA818Y
R731 3.3K
R831 3.3K
Q702 2SA942BL
Q802 2SA942BL
C710 0.015
C711 0.015
C810 0.015
C811 0.015
L701
L801
R729 10
R829 10
R711 100
R811 100
Q708 2SC1175E
Q808 2SC1175E
C704 100µ/80V
C804 100µ/80V
Q710 2SC2238Y
Q810 2SC2238Y
C712 0.047
C812 0.047
Q704 2SA942BL
Q804 2SA942BL
R710 1.5K
R810 1.5 K
R713 47K
R813 47K
D705 DS442X
D805 DS442X
D706 DS442X
D707 DS442X
D807 DS442X
D808 DS442X
D806 DS442X
D708 DS442X
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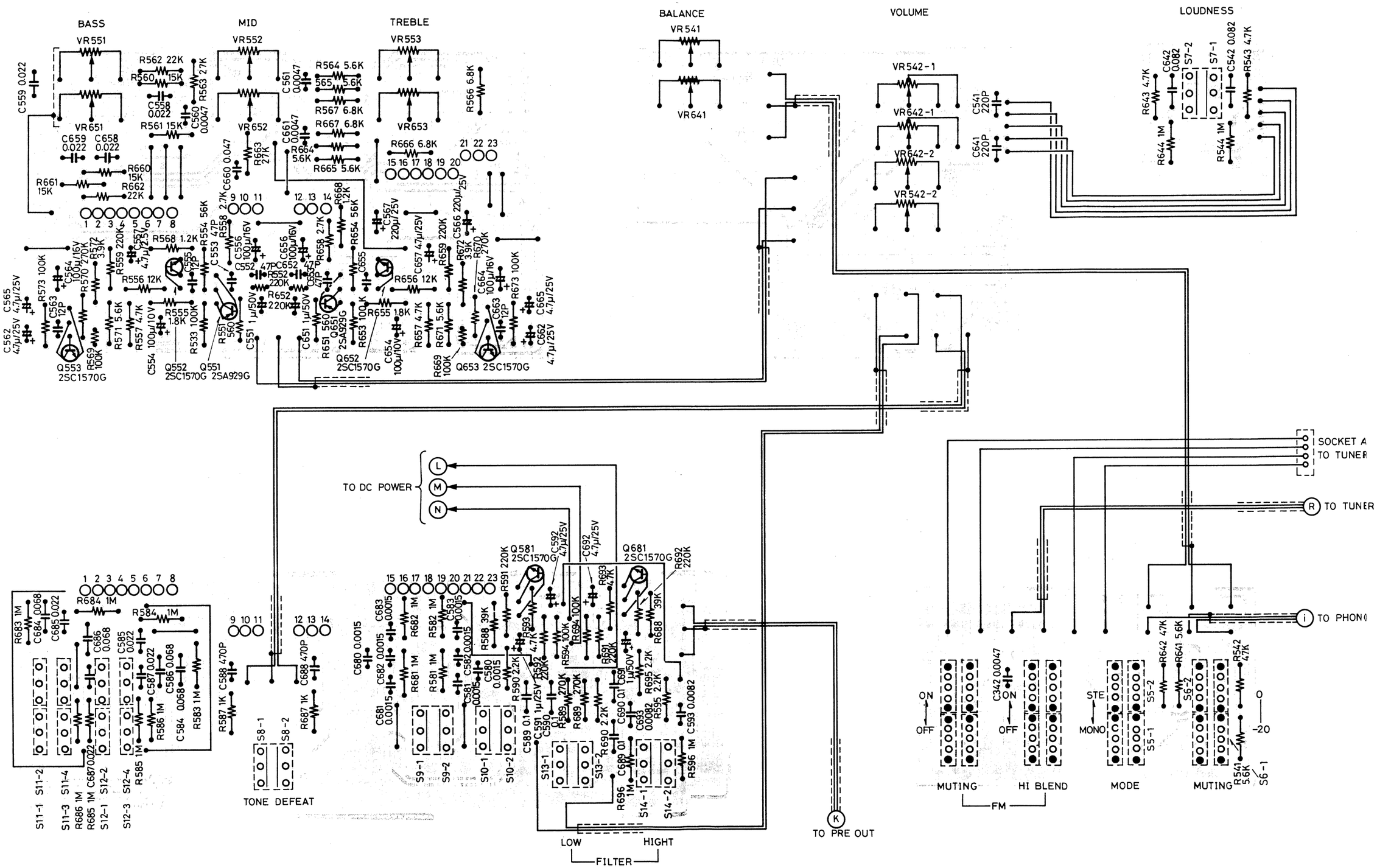
C706 15P
C806 15P
R712 100
R812 100
R732 33K
R832 33K
R728 5.6
R730 56
Q711 2SA968Y
Q811 2SA968Y
R830 56
R828 5.6
R733 27K
R833 27K
Q703 2SA942BL
Q803 2SA942BL
R706 8.2K
R806 8.2K
R707 8.2K
R807 8.2K
C702 3µ/50V
C802 150µ/16V
C808 220µ/16V
C708 220µ/16V
R703 47K
R803 470K
R804 47K
R708 180
R808 180
C703 470P
C803 470P
R704 47K
R701 1K
R801 1K
Q706 2SC1628Y
Q806 2SC1628
C705 100µ/80V
C805 100µ/80V
TO TONE SWITCH P.C.B
K
L
R
POWER IN
PRE OUT
TO DC POWER
D
C
B
A
E
G
H
F
I
J
TO DC POWER


BASS
MID
TREBLE
BALANCE
VOLUME
LOUDNESS
VR551
VR552
VR553
VR541
VR641
VR542-1
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VR542-2
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VR652
VR653
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Q551 2SA929G
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Q652 2SC1570G
Q653 2SC1570G
Q581 2SC1570G
Q681 2SC1570G
TO DC POWER
L
M
N
TONE DEFEAT
S8-1
S8-2
S9-1
S9-2
S10-1
S10-2
S11-1 S11-2
S11-3 S11-4
S12-1 S12-2
S12-3 S12-4
S13-1
S13-2
S14-1
S14-2
LOW
HIGHT
FILTER
TO PRE OUT
K
SOCKET A
TO TUNER
R
TO TUNER
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MUTING
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STE
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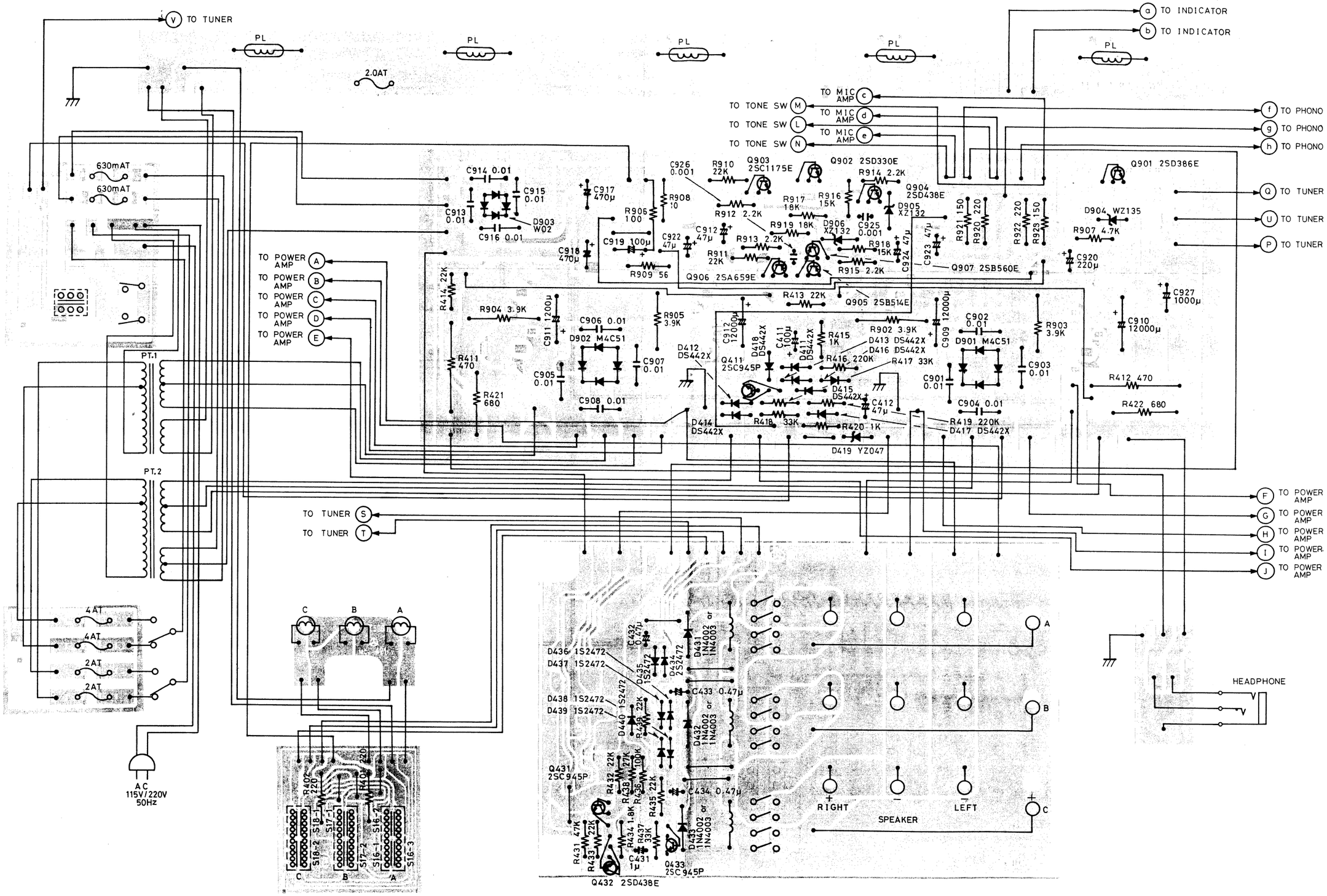
MUTING


TO TUNER
PL
2.0AT
630mAT
630mAT
4AT
4AT
2AT
2AT
AC 115V/220V 50Hz
PT.1
PT.2
TO POWER AMP A
TO POWER AMP B
TO POWER AMP C
TO POWER AMP D
TO POWER AMP E
TO TUNER S
TO TUNER T
TO MIC AMP c
TO MIC AMP d
TO MIC AMP e
TO TONE SW M
TO TONE SW L
TO TONE SW N
TO INDICATOR a
TO INDICATOR b
TO PHONO f
TO PHONO g
TO PHONO h
TO TUNER Q
TO TUNER U
TO TUNER P
TO POWER AMP F
TO POWER AMP G
TO POWER AMP H
TO POWER AMP I
TO POWER AMP J
HEADPHONE
SPEAKER
RIGHT
LEFT
Q901 2SD386E
Q902 2SD330E
Q903 2SC1175E
Q904 2SD438E
Q905 2SB514E
Q906 2SA659E
Q907 2SB560E
Q411 2SC945P
Q431 2SC945P
Q432 2SD438E
Q433 2SC945P
D901 M4C51
D902 M4C51
D903 W02
D904 WZ135
D905 XZ132
D906 XZ132
D412 DS442X
D413 DS442X
D414 DS442X
D415 DS442X
D416 DS442X
D417 DS442X
D418 DS442X
D419 YZ047
D431 1N4002 or 1N4003
D432 1N4002 or 1N4003
D433 1N4002 or 1N4003
D434 2S2472
D435 1S2472
D436 1S2472
D437 1S2472
D438 1S2472
D439 1S2472
D440 1S2472
C914 0.01
C915 0.01
C916 0.01
C917 470μ
C918 470μ
C919 100μ
C920 220μ
C922 47μ
C923 47μ
C924 47μ
C925 0.001
C926 0.001
C927 1000μ
C901 0.01
C902 0.01
C903 0.01
C904 0.01
C905 0.01
C906 0.01
C907 0.01
C908 0.01
C909 12000μ
C910 12000μ
C911 1200μ
C912 12000μ
C431 0.47μ
C432 0.47μ
C433 0.47μ
C434 0.47μ
R901 150
R902 3.9K
R903 3.9K
R904 3.9K
R905 3.9K
R906 100
R907 4.7K
R908 10
R909 56
R910 22K
R911 22K
R912 2.2K
R913 2.2K
R914 2.2K
R915 2.2K
R916 15K
R917 18K
R918 15K
R919 18K
R920 220
R921 150
R922 220
R923 150
R411 470
R412 470
R413 22K
R414 22K
R415 1K
R416 220K
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R418 33K
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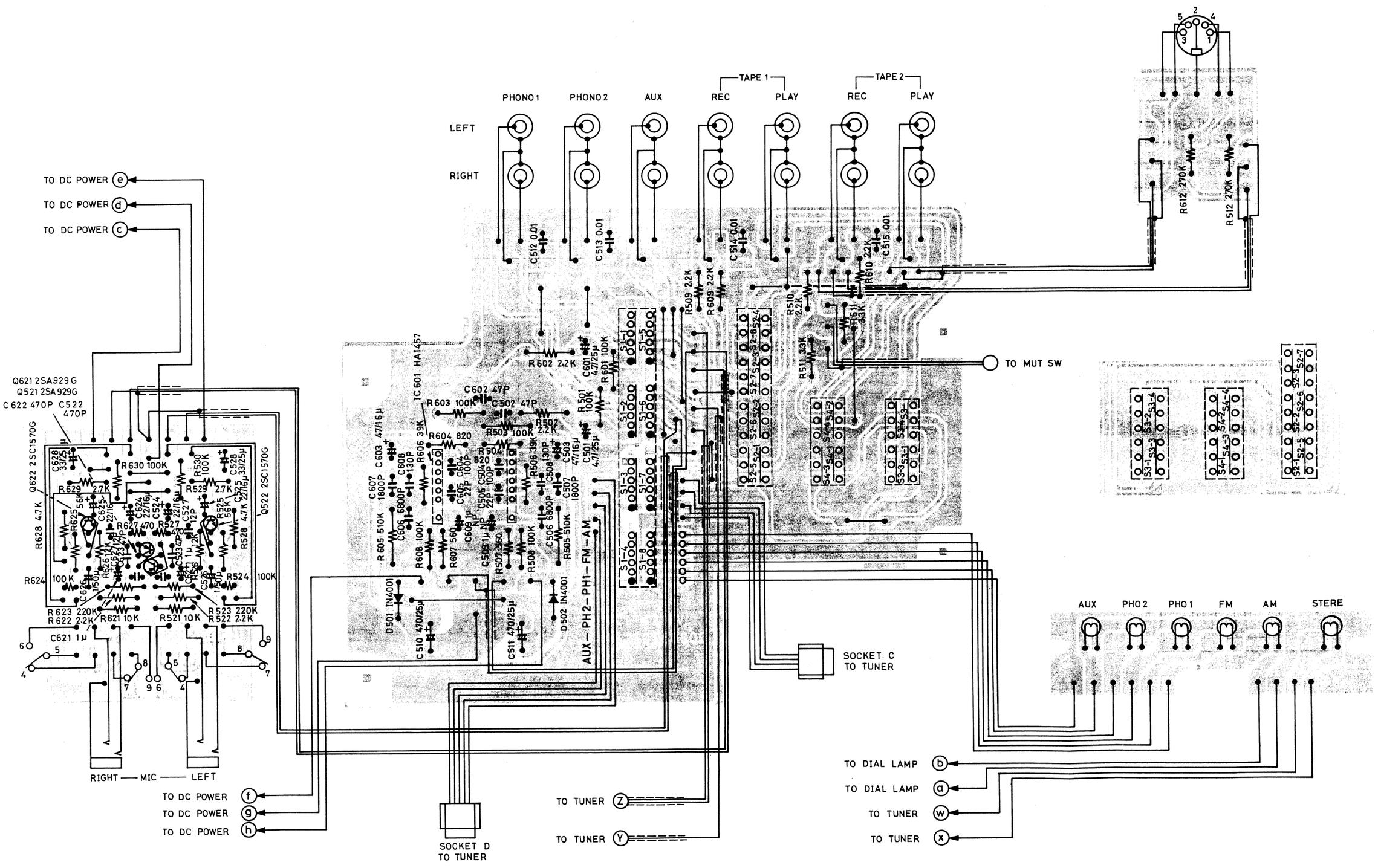
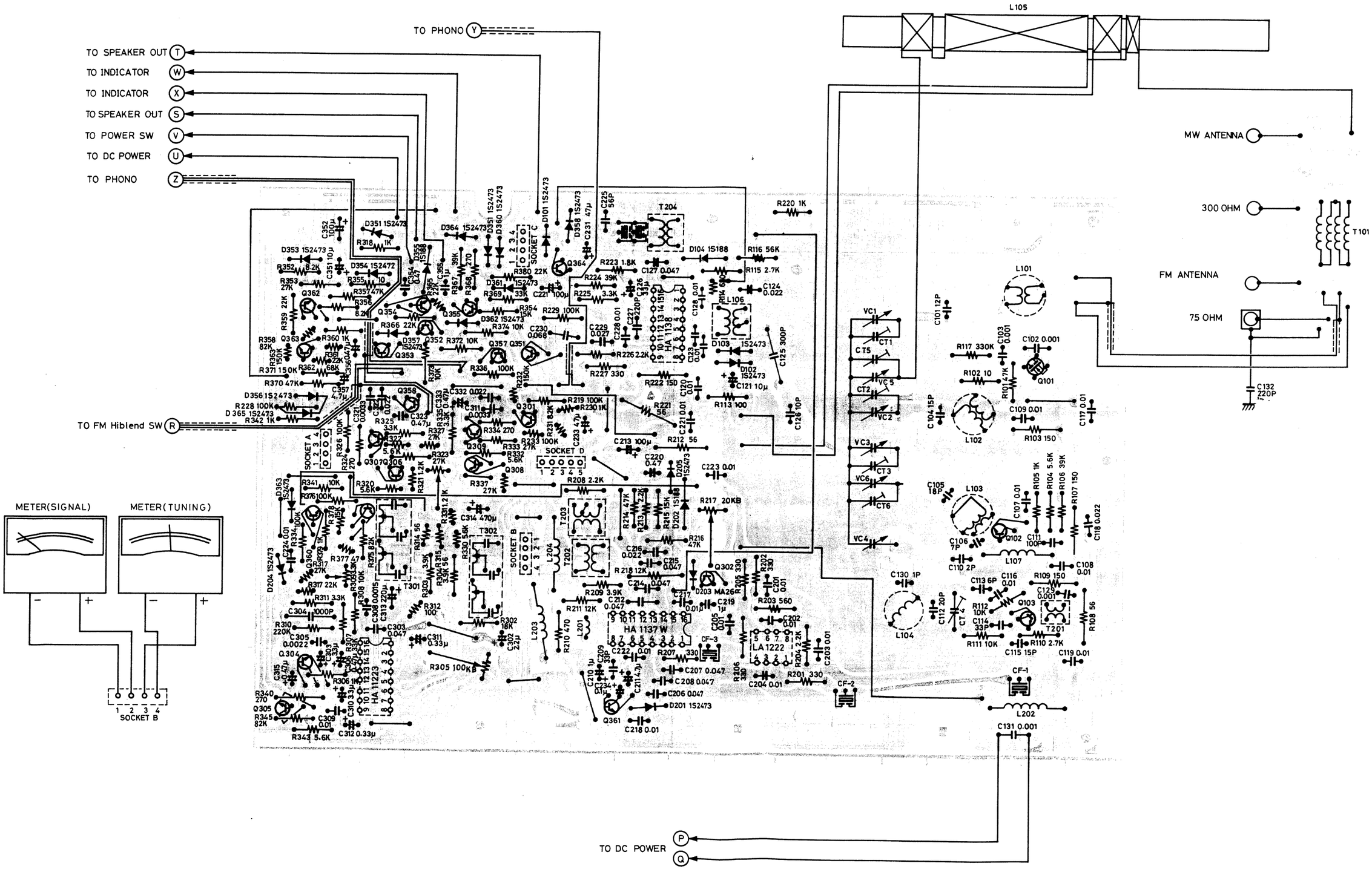
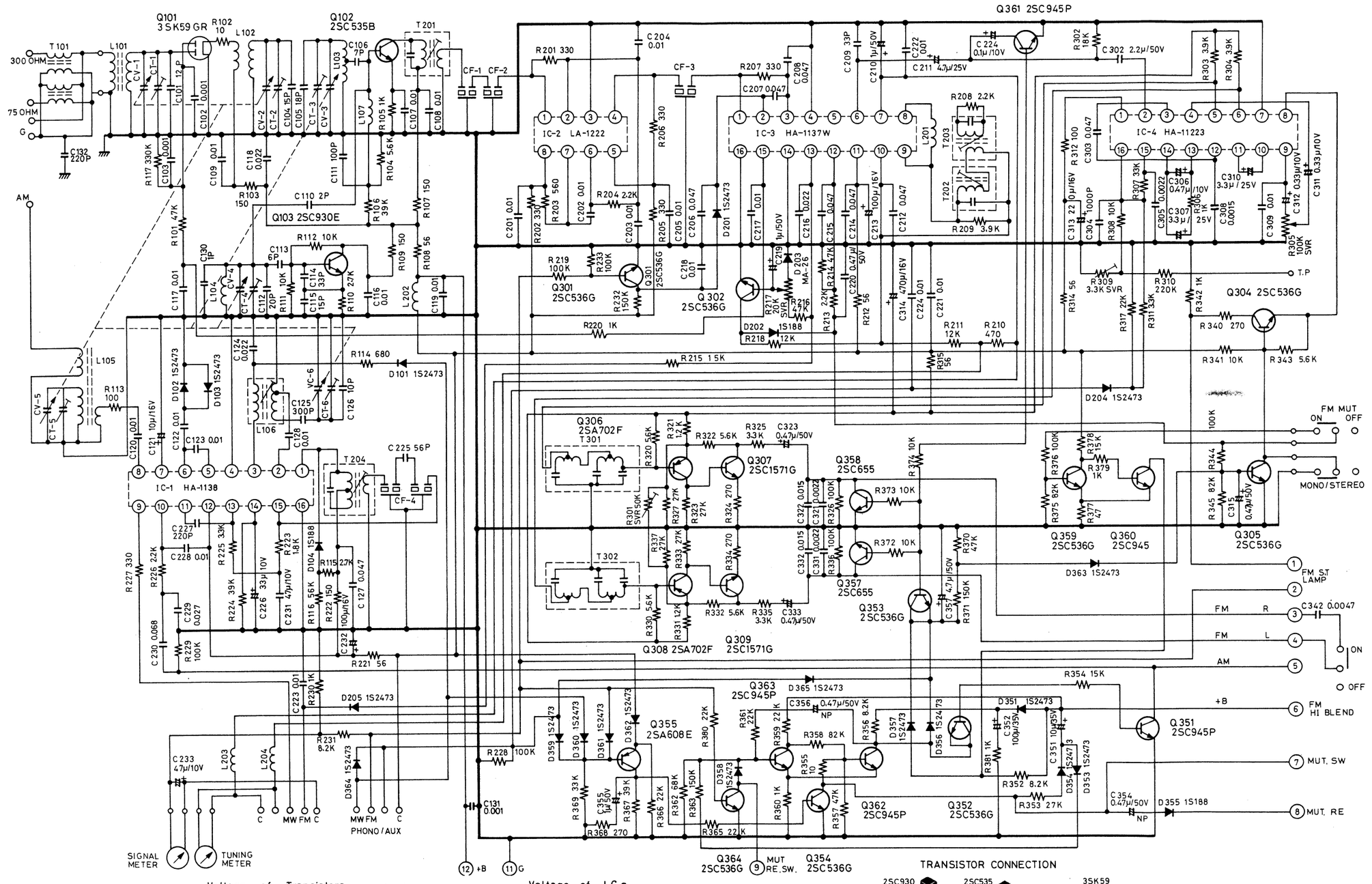
R420 1K
R421 680
R422 680
R431 47K
R432 22K
R433 22K
R434 1.8K
R435 22K
R436 100K
R437 33K
R438 27K
R439 22K
R440 220
S16-1
S16-2
S16-3
S17-1
S17-2
S18-1
S18-2


PHONO 1
PHONO 2
AUX
TAPE 1
REC
PLAY
TAPE 2
REC
PLAY
LEFT
RIGHT
TO DC POWER e
TO DC POWER d
TO DC POWER c
TO MUT SW
SOCKET C
TO TUNER
SOCKET D
TO TUNER
TO DC POWER f
TO DC POWER g
TO DC POWER h
TO TUNER Z
TO TUNER Y
TO DIAL LAMP b
TO DIAL LAMP a
TO TUNER w
TO TUNER x
AUX
PHO 2
PHO 1
FM
AM
STERE
RIGHT — MIC — LEFT
AUX — PH2 — PH1 — FM — AM
Q621 2SA929G
Q521 2SA929G
Q622 2SC1570G
Q522 2SC1570G
IC601 HA1457


TO SPEAKER OUT T
TO INDICATOR W
TO INDICATOR X
TO SPEAKER OUT S
TO POWER SW V
TO DC POWER U
TO PHONO Z
TO PHONO Y
TO FM Hiblend SW R
L105
MW ANTENNA
300 OHM
T101
FM ANTENNA
75 OHM
C132 220P
L101
L102
L103
L104
L106
L107
T204
T203
T202
T301
T302
HA 1137 W
LA 1222
SOCKET A
SOCKET B
SOCKET C
SOCKET D
METER(SIGNAL)
METER(TUNING)
1 2 3 4
SOCKET B
TO DC POWER P Q

SCHEMATIC DIAGRAM (TUNER)



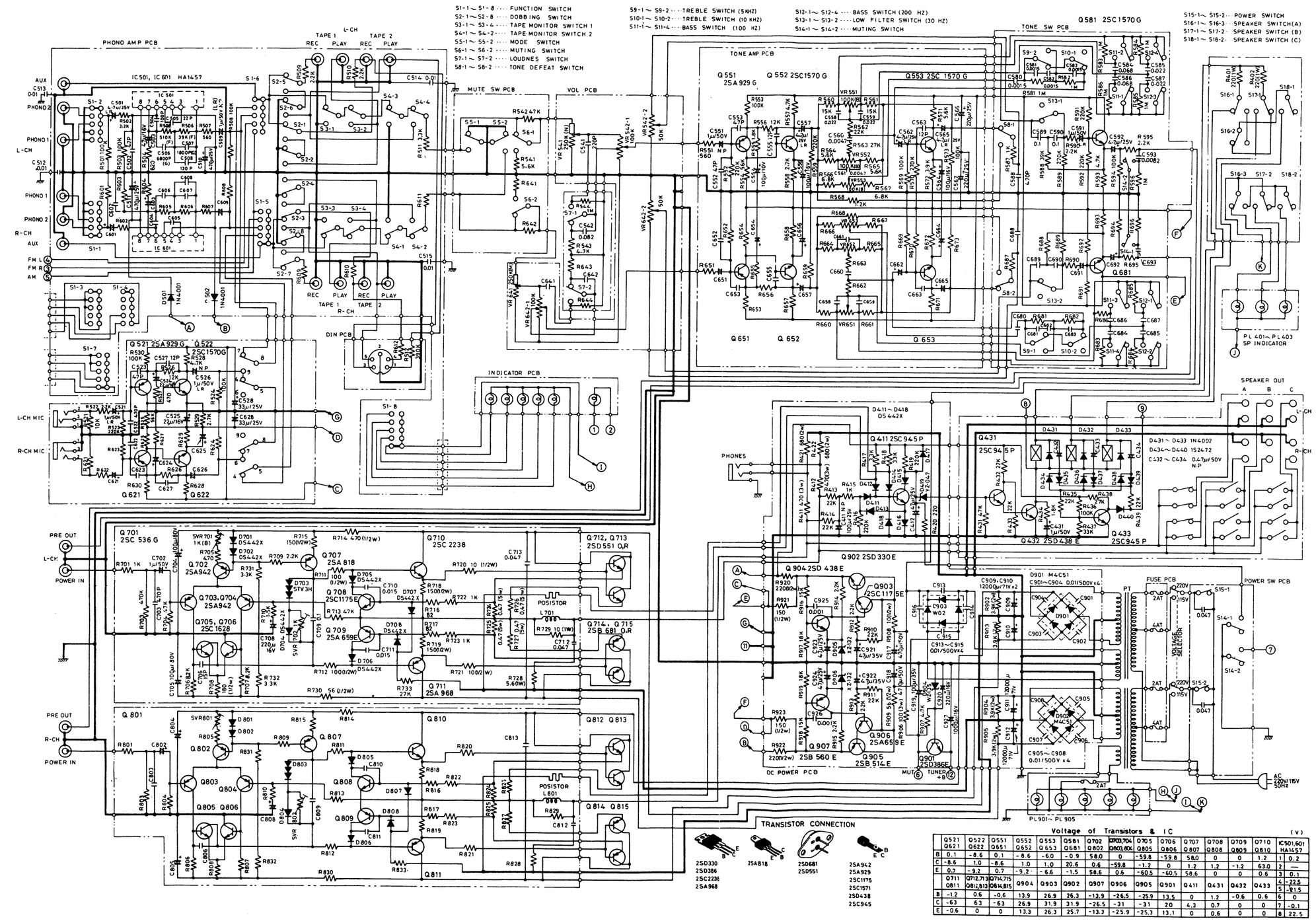
Voltage of Transistors (V)

	Q101		Q102	Q103	Q306 Q308	Q307 Q309	Q357,358 Q351,361	Q359	Q360
G1	0								
G2	4.2	B	1.4	5.57	9.81	0.91	0	0.66	0.1
D	9.6	C	11.5	11.29	0.91	4.23	0	0.1	12.2
S	0	E	0.84	4.9	10.34	0.3	0	0.03	0.03
	Q304		Q305	Q355	Q363	Q362	Q354	Q353	Q352
B	0.07	B	0	11.88	0.59	2.92	0	0	0
C	11.47	C	0.07	0	11.94	2.32	2.92	1.9	2.32
E	0.07	E	0	11.86	2.28	2.28	0	1.91	2.32

Voltage of ICs

IC 1				IC 2				IC 3				IC 4			
1	9.88	9	0	1	1.3	1	1.97	9	5.5	1	10.16	9	5.87
2	2.68	10	3.63	2	1.3	2	1.97	10	5.51	2	3.47	10	2.72
3	11.45	11	4.11	3	0	3	1.97	11	11.42	3	4.72	11	2.73
4	9.88	12	11.43	4	10.7	4	0	12	3.8	4	2.59	12	2.74
5	4.72	13	2.66	5	11.35	5	0	13	0.57	5	9.73	13	2.74
6	7.86	14	2.8	6	1.29	6	5.44	14	0	6	9.75	14	2.74
7	1.92	15	2.62	7	9.64	7	5.57	15	4.76	7	0	15	4.5
8	0.87	16	0	8	10.61	8	5.49	16	0	8	0	16	2.95

SCHEMATIC DIAGRAM



Voltage of Transistors & IC (V)

	Q521 Q621	Q522 Q622	Q551 Q651	Q552 Q652	Q553 Q653	Q581 Q681	Q702 Q802	Q703,704 Q803,804	Q705 Q805	Q706 Q806	Q707 Q807	Q708 Q808	Q709 Q809	Q710 Q810	IC501,601 HA1457	
B	0.1	-8.6	0.1	-8.6	-6.0	-0.9	58.0	0	-59.8	-59.8	58.0	0	0	1.2	1	0.2
C	-8.6	1.0	-8.6	1.0	1.0	20.6	0.6	-59.8	-1.2	0	1.2	1.2	-1.2	63.0	2	—
E	0.7	-9.2	0.7	-9.2	-6.6	-1.5	58.6	0.6	-60.5	-60.5	58.6	0	0	0.6	3	0.1
	Q711 Q811	Q712,713 Q812,813	Q714,715 Q814,815	Q904	Q903	Q902	Q907	Q906	Q905	Q901	Q411	Q431	Q432	Q433	4	-22.5
															5	-21.5
B	-1.2	0.6	-0.6	13.9	26.9	26.3	-13.9	-26.5	-25.9	13.5	0	1.2	-0.6	0.6	6	0
C	-63	63	-63	26.9	31.9	31.9	-26.5	-31	-31	20	4.3	0.7	0	0	7	-0.1
E	-0.6	0	0	13.3	26.3	25.7	-13.3	-25.9	-25.3	13.1	0	0.6	0	0	8	22.5

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